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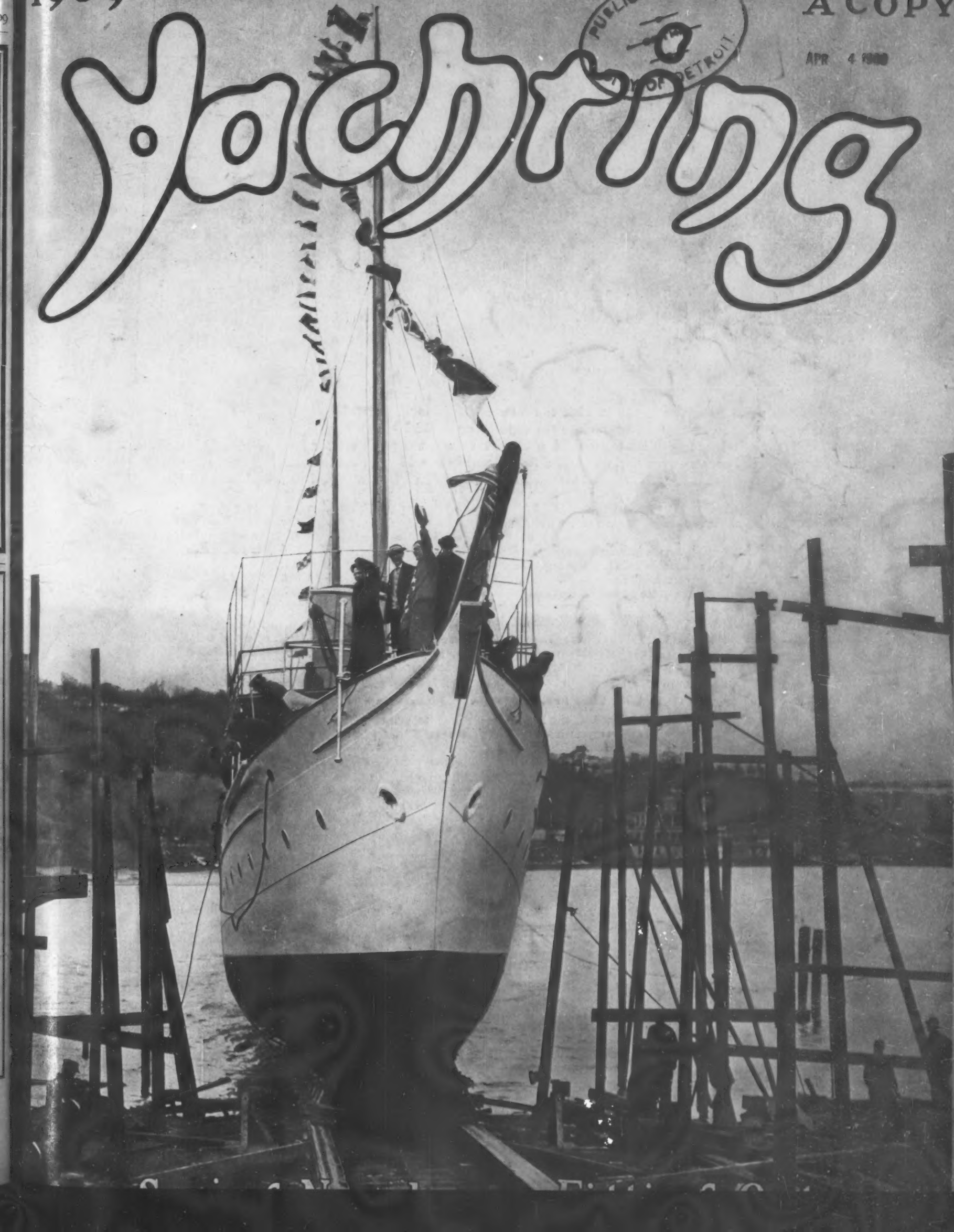
Yachting



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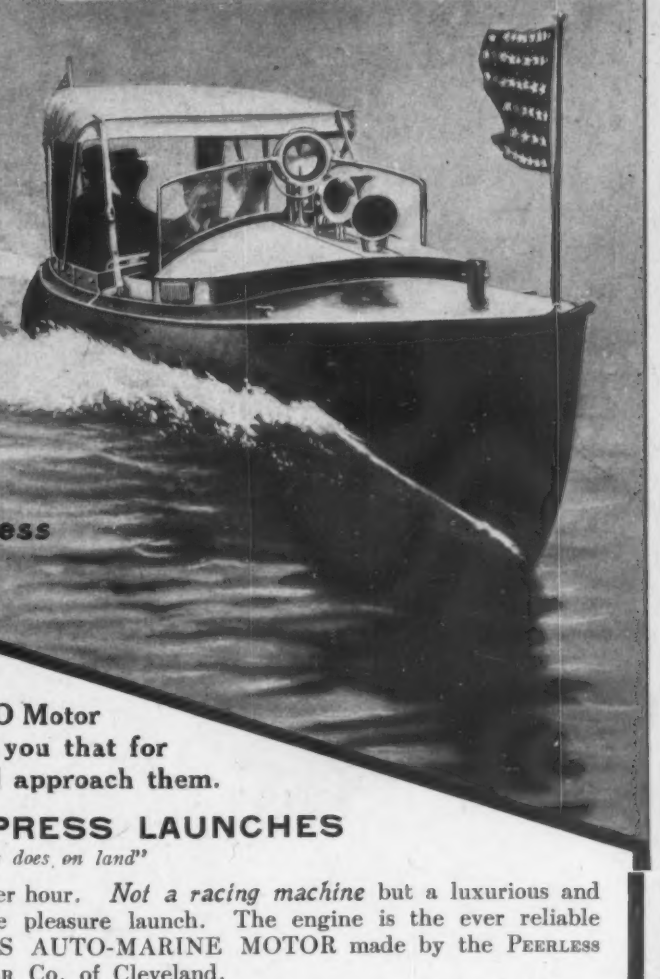

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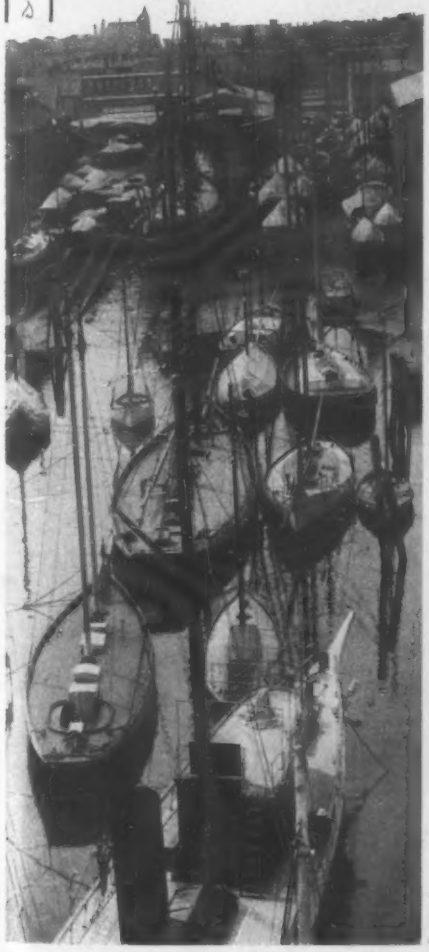

LAWRENCE PERRY, Editor HERBERT L. STONE, Managing Editor

Published Monthly. 25 cents per copy. $3.00 per year. For Foreign Postage add $1.00. For Canadian postage add 50c.

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Entered as Second Class Mail Matter at the Post Office, New York, N. Y.

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MID-WINTER CRUISING IN LOUISIANA WATERS. HORNET II, AN IDEAL 50-FOOT CABIN BOAT, WHICH SHOWS 23 MILES AN HOUR WITH A 100-HORSEPOWER ENGINE.

YACHTING

VOLUME V. NUMBER 4

April, 1909

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JAVELIN, DESIGNED BY NORMAN L. SKENE. SHE WILL BE ONE OF NEW ENGLAND'S REPRESENTATIVES IN THE BRITISH INTERNATIONAL TRIAL RACES.

The National Outlook for the Season of 1909

WITH THE PASSING OF THE HARD TIMES CRY, THE PROSPECTS ARE EXTREMELY BRIGHT FOR ONE OF THE BEST SEASONS IN A NUMBER OF YEARS—FROM EVERY LOCALITY RENEWED ACTIVITY AND ENTHUSIASM IS REPORTED—A NUMBER OF INTERNATIONAL AND LONG-DISTANCE RACES WILL ADD TO THE INTEREST

AT this season of the year, when the yards are beginning to become alive with the spring fitting-out and the returning sun imparts its warmth to spirit and blood, when "the old spring fret comes o'er you," one involuntarily turns to the prospects for the coming season afloat. Following its usual custom, YACHTING has collected from well-known authorities throughout the country opinions as to the outlook for the various localities where yachting flourishes. Both as to sailing and power boating, racing and cruising events, the outlook is more promising than it has been for years, and a general feeling of optimism prevails, except, perhaps, in Canadian Great Lake waters, where the failure of the race for the Canada's Cup took away some of the enthusiasm. But even here a well-planned and interesting season has dispelled much of the disappointment.

In New England Waters

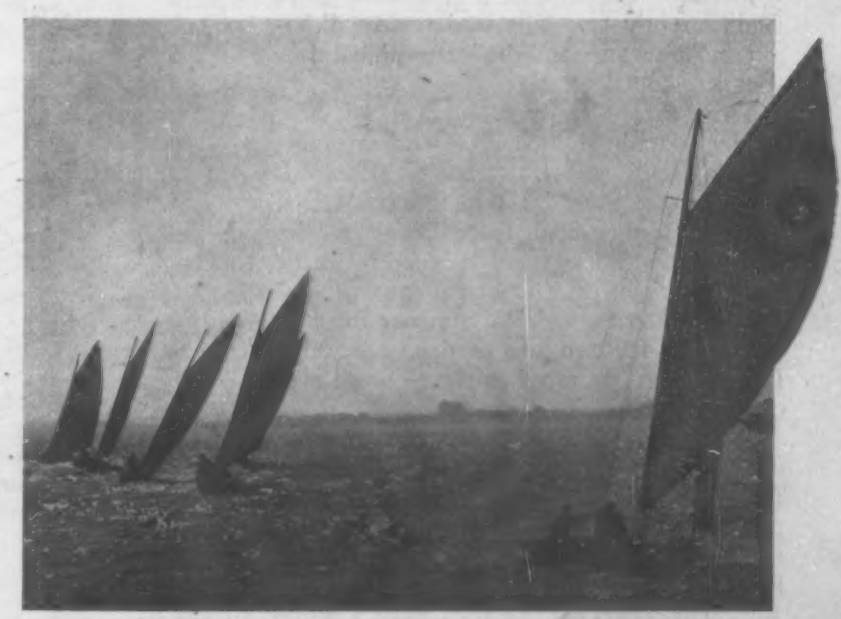
BY J. F. M'NALLY

New England, and particularly Massachusetts Bay, yachtsmen are looking forward to one of the best racing seasons in years, and this in the face of the fact that there will be but few new classes. One of the few, however, will be a one-design class for the Manchester Yacht Club, with two boats, also for this class, for members of the Corinthian Yacht Club, making about nine boats in all.

There will also be a new 31-rater class, with boats for Arthur W. Stevens, who owned the 22-rater Essex last season, and for John D. Fallon. These boats, which will be small Dorellos, have been designed by George Owen, and, with Onda II, designed last season, Marie L., and possibly Shearwater II, the class should furnish some excellent racing. The new boats are said to be well-turned craft, with excellent cabin accommodations, being designed for cruising as well as for racing.

New life and interest will be given the 18-foot knockabout class by the advent of the new boat designed by John F. Small for Mr. Albert Finlay, which is to go to Cleveland to race for the Sumner H. Foster Memorial Cup, won last year by Hayseed from Mr. Finlay's old champion, Dorchen. The new boat has been designed to meet conditions on the lakes, and should give a good account of herself against Hayseed or any of the 18-footers that will be pitted against her. The 18-foot class this season in Massachusetts Bay will have several recruits, and these little knockabouts, once the greatest racing class in the East, will be out again and make a brave showing during the season.

There will be a race for the Quincy Challenge Cup, now held by the Quincy Club, and two challenges have been lodged for it already, the first coming from the Boston Yacht Club. There



THE INTERNATIONAL *Sonderklasse* RACES WITH THE GERMANS ON MASSACHUSETTS BAY WILL BE THE PRINCIPAL SAILING EVENT OF THE YEAR.

will probably be challenges from the Corinthian, Eastern, Manchester, and possibly the Beverly Yacht Clubs.

There will be another international dory race off Marblehead for the Lovitt-Wagner trophy, held by the Massachusetts Racing Dory Association, and boats will come from Yarmouth, Shelburne and Halifax. There will also be another inter-State dory match between the Massachusetts boats and those of the Portland Yacht Club for the Walter E. Knight trophy. The Portland men are preparing to make a great fight to regain the trophy, and several new boats have been built.

Down on Buzzards Bay a number of the old *sonder* boats will be raced, and, as the weather conditions are much as they are at Kiel, some valuable data will be obtained by the owners of these boats, who may be among those who will have boats built to go to Germany in 1910. The great interest this year, of course, will center in the German-American *sonderklasse* races for the President William H. Taft and Governor Eben S. Draper Cups, and a splendid fleet of boats will meet in the trials for the selection of the defenders to meet the German challengers. The conditions for these races are practically the same as those which governed the races for the Roosevelt Cup in 1906.

ELEANOR. SHE HAS ONE LEG ON THE $2,500 THOMPSON TROPHY, AND SHOULD MAKE A STRONG BID THIS YEAR TO TIGHTEN HER GRIP ON IT.

Thanks to the energetic campaign of the regatta committee of the Eastern Yacht Club, or rather, the German-American race committee, there will be entries from outside Marblehead, which will add greatly to the interest in the trial races, which promise to be fully as exciting and as hotly contested as the actual international contests. The entries for the American trials will close with Henry Howard, of the Eastern Yacht Club, on July 17. The trial races will begin on August 16, and the international contests on August 30.

There are already a number of new *sonder* boats in sight, and several are talking of building. Lawrence F. Percival, who had the Sally VIII in the first trials, will have a new boat, to be known as the Sally X, which has been designed by B. B. Crowninshield. E. A. Boardman will design three boats, and W. Starling Burgess has orders for two, one of them for Caleb Loring, who has raced in class Q and also on Sally VIII.

Vice-Commodore F. Lewis Clark, owner of Spokane I and II, will have a new boat from Clinton Crane's design, and it will probably be sailed by J. Lewis Stackpole, who raced Spokane I with such success. It is stated that William Gardner, of New York, has orders for two *sonder* boats, while C. D. Mower has turned out a boat for Commodore William H. Childs. The Great Lakes may be represented by Morrill Dunn, of Chicago, and the Southern Yacht Club, of New Orleans, may send a representative.

It would not be surprising if there were twenty boats in the trial races, which may be run in heats if there is such a large entry list. The international races will give yachting a big boom this year, and the disastrous effect of rule juggling will be forgotten for the time being.

As to power boating, there never was such activity as is seen at the yards where many of these craft are being turned out. There will probably be at least two entries of Massachusetts boats for the power-boat race from Bay Ridge to Marblehead, which starts on July 17. Massachusetts will also be represented in the races for the British International trophy by Autowin II, owned by Edwin Webster and designed by Swasey, Raymond & Page, and also by Javelin, designed by Norman L. Skene for Mr. Austin. Both these boats are expected to give good accounts of themselves. Autowin II had hard luck last season, after making fast time on her trials. Her designers will endeavor to get her in perfect trim for the contest this year.

A ONE-DESIGN CLASS OF 19-FOOTERS TO BE RACED IN THE S CLASS ON LONG ISLAND SOUND. DESIGNED BY COX & STEVENS.

On Long Island Sound

BY L. DE B. HANDLEY

Early prospects for the Long Island sailing season of 1909 were concisely summed up by a well-informed yacht broker in the one sentence: "Everything able to race, from the 57s down, will be in commission next summer." This means that the outlook for an unusually brilliant and successful season was never better.

That it will be a small-boat season seems undoubted. The larger schooners and sloops may turn out for the N. Y. Y. C. cruises, but they will not take active part in the Sound regattas, and the best that can be hoped is that all three of the fifty-sevens will be in the water. It appears certain that Aurora and Istalena will resume their interrupted duel of 1908, but whether Winsome will be out is still uncertain.

Herreshoff is building a sloop in class L, and rumor already has it that Avenger will change hands and these two sloops will race against each other in some of the Sound regattas. Jacob is to put out a sloop of the Dorello type, class N; and there is still talk of the three other promised ones materializing, though for a while the prospect looked very doubtful.

Interest in the New York thirties, the best class on the Sound, seems not one whit

abated, and, in spite of the fact that several are for sale, there is a general feeling that they will be in commission whether sold or not, so that the class will furnish as fine racing as ever. The much-spoken-of class P boat to be built for the Manhasset Cup is, at the present writing, a decided uncertainty. Many claim that the new scantling rule would hurt her sufficiently to make it practically impossible for her to beat Seneca.

The % sign will be more in evidence than ever, and will again furnish the bulk of starters in most regattas. The class is daily becoming more popular, and several additions, including Notos, Chinook, Maryola and Brigand, will be made to its membership before summer comes. Owing to this expected increase, it is likely that a fifth division will be added to the existing four, and that a more desirable classification than by speed alone will be made.

Among the small, one-design classes those of the Seawanhaka Larchmont, Manhasset Bay, Indian Harbor, Rhode Island and New Rochelle Yacht Clubs will be on the water, and there is talk of the American Yacht Club raceabouts reorganizing.

A new one-design class from drawings by Cox & Stevens is being built for a coterie of yachtsmen having places along the North Shore of Long Island. These boats—which are expected to make the S class—are for such well-known handlers as Harry Maxwell, J. Rogers Maxwell, Howard Smith, Howard Whitney, F. L. Hine, Irving Cox and three or four others. The boats will be 28 feet 11 inches over all, 19 feet waterline, and 6 feet 9 inches beam.

THE 14-FOOT SAILING DINGHYS WILL BE POPULAR ON GRAVESEND BAY THIS SEASON. A DINGHY ASSOCIATION HAS ALREADY BEEN FORMED THERE TO GOVERN THE SPORT.

Long-distance racing will be a feature of the season. Besides the Block Island and the two Stratford Shoal races and the annual club cruises, there will be a race around Long Island, from New York Bay to Echo Bay, for cups offered by YACHTING. The Atlantic Y. C. and New Rochelle Y. C. will stand sponsors for it.

The increased interest in cruising races is responsible for a radical departure from custom on the part of the New York Y. C. While the spring regatta will be held off Glen Cove, the other events will be sailed over longer courses. July 7 the fleet will race from Glen Cove to Newport—115 miles—there to compete on the 9th for the Newport Y. C. trophies. July 10 the annual regatta will be sailed from the Brenton Reef Lightship around Block Island and back. July 12 the return race to Glen Cove will be held. The annual cruise will also be extended. The yachts will meet at New London and go as far as Portland or Bar Harbor.

Motor-boat racing will be featured by the international events at Huntington, and many new racing and cruising events will be added to the usual club fixtures. A great number of new boats will be in the field, but lack of space makes it quite out of the question to begin to enumerate them. The annual Marblehead-New Rochelle classic for small cruising boats will be started from New York Bay this year, and the boats will run outside of Long Island instead of through the Sound. It will truly be an ocean race. A dozen new boats and several of last year's competitors are among the probable starters.

The Outlook for Gravesend Bay Yachting

BY L. DE CASANOVA

Gravesend Bay—that delightful strip of racing water which lies under the shadow of the guns of Fort Hamilton and stretches to where the lights of Coney Island twinkle and shine—will be covered with innumerable craft this summer. Indications point to an unusually busy season for Brooklyn tars. As a result of the excellent race week held by the Atlantic Yacht Club last September the event will be repeated by the club this year, beginning September 2. It has been suggested that the Yacht Racing Association of Gravesend Bay hold a race week each year. There are six clubs in the association, and if each one gave a race the week would be rounded out in splendid style. Whether or not this will be done is yet uncertain; but, if it is, those who compete in the events will be assured of excellent racing and a good time.

The week last year was the first of the kind on Gravesend Bay in years, and, although the racing was confined principally to the smaller classes, the regatta was one of the most interesting of the year. Captain Frederic Thompson, of the schooner Shamrock, was principally responsible for the week. He donated the majority of the prizes, notably the $2,500 trophy for the Q boats, though other cups were offered by Captain Frederick Underwood, Captain Hendon Chubb and Captain R. A. Brown.

There will be another series of races for this trophy the coming season, which should equal in interest that of last summer. Eleanor, with one leg on the cup, should make a strong bid this year, as appearances point to few, if any, new Q boats on the Lower Bay.

Gravesend Bay is the home of the small boat, and already plans are under way to increase the number of the little fellows which will race each week on lower New York Bay. The feature of the season will be the advent of a class of dinghys. The craft is being fostered by the New York Canoe Club, and, as the class has already received recognition by the Yacht Racing Association of Gravesend Bay, the division is sure to grow in popularity, and it is expected that at least twenty of the little fellows will race throughout the summer for championship points.

The history of the dinghy on Gravesend Bay is an interesting one. C. V. Schuyler brought the first boat from Toronto, its home, several summers ago. The craft found favor among the members of the New York Canoe Club, and a half-dozen were built in the States, modeled after the Canadian craft. The owners of the boats used to race them on Saturday afternoons in the

canoe regattas of the New York Canoe Club. The scrapping was always keen and interesting, and, realizing that the type was a good one to encourage, in order that young Corinthians might learn the art of sailing in a cheap boat, the various clubs on Gravesend Bay began last summer to offer prizes for the dinghy class.

During the winter a dinghy association was formed. Former Commodore D. D. Allerton was elected president and R. DeF.

SACAJAWEA, A LAKE MICHIGAN LONG-DISTANCE RACER. WINNER OF THE CHICAGO-MICHIGAN CITY MOTOR BOAT RACE.

Bayley, secretary. It was decided that the boats should be modeled after the Toronto dinghy, and that the class should consist of a 14-foot, smooth-skin, centerboard, mainsail yacht, decked fore and aft with open cockpit, and 5 feet 6 inches beam. The single mainsail allowed will not contain more than 140 square feet, actual measurement.

Not only will the advent of the dinghys increase the number of starters on Gravesend Bay, but several boats are being built for the knockabout class. The division would have been a popular one last year had it not been divided before the racing season was a month old. The troubles have been settled, however, and all the boats will race as the Gravesend Bay dory class this summer. To avoid future bickering, it has been decided that any yachtsman wishing to build into the class must first have the plans of his boat approved by a committee appointed by the dory association.

There is very little prospect of any new boats appearing in the larger classes. The only new boat of any importance that is being built for a Brooklyn Corinthian is a *sonderklasse* boat from the boards of C. D. Mower, which will be raced in the trial contests off Marblehead this summer. The craft is the property of W. H. Childs, commodore of the Bensonhurst Yacht Club.

It is still too early to tell very much about the racing programme for the lower bay. The usual Saturday contests will be sailed, and, as is customary, each club will take a hand in giving the regatta. The Brooklyn Yacht Club is talking of having its usual ocean race, and the Atlantic Yacht Club will start a contest around Long Island for a trophy offered by YACHTING. The contest is to end off the New Rochelle Yacht Club.

One of the principal events of race week last season was the ocean race around Fire Island Lightship. Four sloops, three schooners and two yawls made up the fleet, and, barring only one of the yawls, they all finished within fifteen minutes of each other. The ninth boat followed the leaders within the hour. The Atlantics are already planning for another ocean race for large yachts this season, but the course and details are not yet ready. They are also planning for more large classes in their regular regattas.

It is to be hoped that the mistake of last year in ending long-distance races in Gravesend Bay instead of off the Hook will not be repeated this year.

The Crescent Athletic Club is also to give an ocean race for power boats. The course will take the boats outside of Long Island to the Eastern Yacht Club at Marblehead. The Crescent contest is to take the place of the annual Marblehead race, which heretofore has been started from one of the Sound yacht clubs. The struggle will be an annual fixture, with the Crescent Athletic Club giving the race one year and the Eastern Yacht Club fostering the contest the following summer. It will be a real ocean race, as almost the entire distance will be on the broad waters of the Atlantic. With a new regatta committee at all of the Brooklyn clubs, it is rather difficult to predict just what is going to be the outcome of the season's racing. John R. Brophy has retired from the race committee of the Atlantic Yacht Club, after serving in an exceptionally creditable manner for the past two years. The work this year will fall principally upon Horace E. Boucher, who was Mr. Brophy's assistant last season. George R. Beston is the chairman at the Bensonhurst Yacht Club, and William Griffin will look after the racing in the Brooklyn Yacht Club.

The Outlook on the Great Lakes

BY JOHN F. CUNNINGHAM

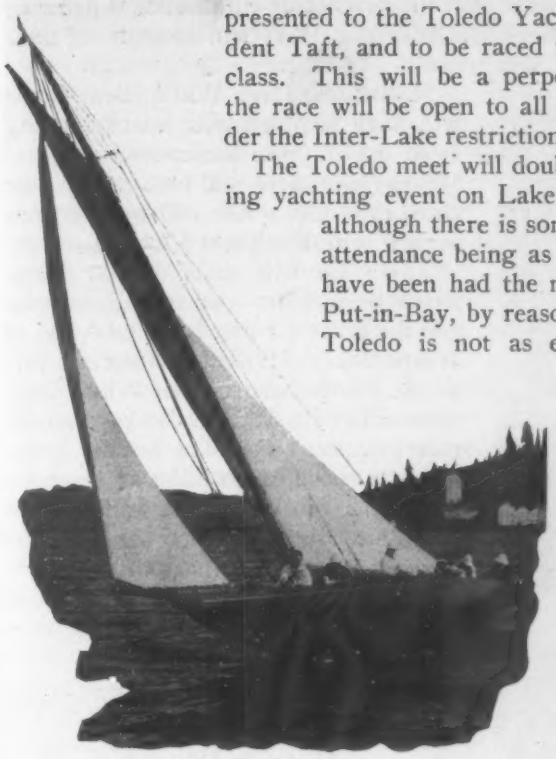
If asked to state the outlook for the coming yachting season, any enthusiast is very likely to reply with optimism. That is only natural, for there is always a peculiar pleasure in the anticipation of a coming yachting season. Getting down to concrete facts, however, we believe that the outlook for the coming yachting season on the lower lakes is very good.

An innovation was sprung at the annual meeting of the Inter-Lake Yachting Association at Toledo, when the delegates voted, 11 to 3, that the next Inter-Lake meet should be held at Toledo during the week of August 22. For the first time in many years this classic event will be held elsewhere than at Put-in-Bay. So

OCONOMOWOC, ONE OF THE CLASS A CRACKS OF THE INLAND LAKES YACHT RACING ASSOCIATION. THERE ARE A NUMBER OF NEW BOATS BUILDING IN THIS CLASS.

long has this regatta been held at "The Bay" that it had come to be considered almost a fixture.

But this year Toledo captured the "meet" by reason of the facts that the head of the association is a resident of that place, and that the Toledo Chamber of Commerce put up a round $2,500 for prize money; and also because the "meet" is to be one of the central attractions of a great celebration that is to be to Toledo what the Mardi Gras is to New Orleans. The prizes to be offered are particularly attractive, aggregating about $5,000 in value. One of the most notable among the trophies will be a beautiful loving cup



RIVAL, THE EVERETT YACHT CLUB'S CONTENDER IN THE INTERNATIONAL TRIAL RACES. SHE WILL TRY TO WIN A PLACE IN THIS YEAR'S EVENT.

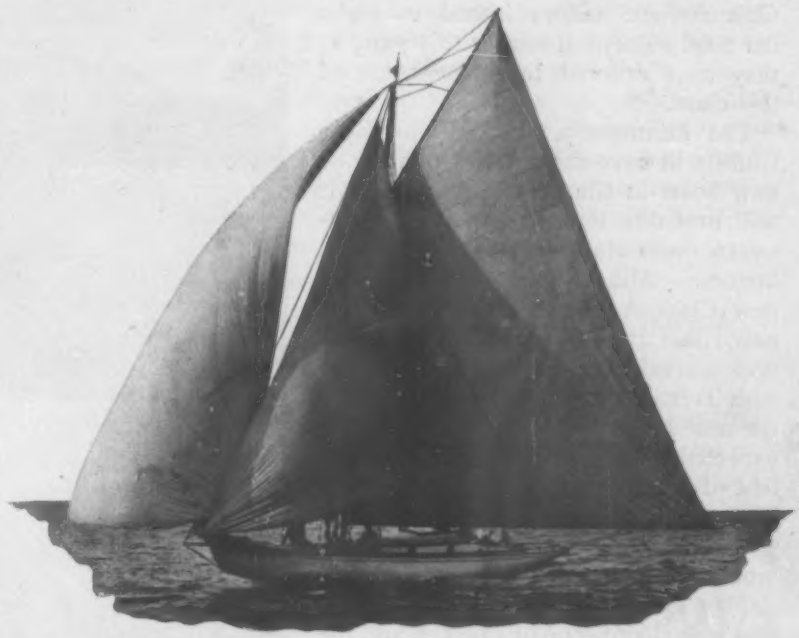
presented to the Toledo Yacht Club by President Taft, and to be raced for in the catboat class. This will be a perpetual trophy, and the race will be open to all catboats built under the Inter-Lake restrictions.

The Toledo meet will doubtless be the leading yachting event on Lake Erie this season, although there is some doubt as to the attendance being as large as it would have been had the meet been held at Put-in-Bay, by reason of the fact that Toledo is not as easily reached by boats from other clubs as are the islands. It is certainly to be hoped that the array of prizes and the hard work that will be done to make the meet a success will not be in vain. The regatta will be more than a month later than usual, which has caused some regret, especially among the members of the Lakewood Yacht Club, the thriving Cleveland organization, which is looked upon everywhere as the strongest yachting body on Lake Erie. Before the Inter-Lake meet it had been practically decided that the annual open regatta of this club would be held during the week of September 5. This is a great event at Lakewood, for it is then that the Winton trophy is raced for by the 18-foot knockabout class. Lakewood has the best fleet of these boats west of Massachusetts Bay, and the trophy named above is the finest ever donated by an American for the promotion of a sailing class. This year's open regatta will be of unusual interest, inasmuch as it will see a series of races between the champion of Massachusetts Bay and the champion of the Lakewood Club for the custody of the Sumner H. Foster Memorial Cup, which was taken from the Massachusetts Bay contingent last August by Hayseed, owned and sailed by Lakewood men. The same regatta will see good power boat races, as well as contests in the 16-foot and catboat classes. The Lakewood men have always been faithful attendants at the Inter-Lake meet, and they are determined that, as far as possible, they will be in evidence at Toledo.

So far, nothing has been done in the way of new 21-footers for this season. This class has been a very attractive one for several years past, and the races between boats representing Cleveland, Detroit and Chicago have been leading features of Inter-Lake meets. Cleveland is now offered for sale, and Detroit seems content to defend her honors with the boats that were in commission last season.

It is likely that the power boat fever that struck these parts last year will show no abatement this season. Interest in the gasolene craft is attracting general attention, and many fine boats are already flying the burgees of Lake Erie clubs. The Toledo long-distance race will be so timed that it will finish at Lakewood just before the open regatta of the latter club. The Toledo boats will then have an opportunity to participate in this regatta.

From Chicago word comes that the outlook on Lake Michigan is very bright. The leading sailing series will be the annual contest for the Lipton Cup. No new boats are being built for this class (21-foot), but there are a goodly number in it already. The Chicago Yacht Club's annual Mackinac race has been set to start July 24. The Lake Michigan Yachting Association will hold a three or four-day meet about July 4, under the auspices of several clubs. The power boat classes are being boomed to a finish on



SPIRIT, WHICH MADE "TED" GEARY'S REPUTATION BY DEFEATING ALEXANDRA IN THE CUP RACES OF 1907, IS NOW OWNED IN VICTORIA AND WILL BE RACED THIS YEAR.

that lake, and it is said that between fifteen and twenty cabin cruisers of 30 to 60 feet in length are being built in and around Chicago. The Columbia and Jackson Park Yacht Clubs both have strong fleets of power craft, and it is likely that they will have some good racing this season.

The event on Lake Michigan this year, at last, is expected to be the Columbia Yacht Club's annual Green Bay relay race and cruise. It will start from Chicago on July 17 and run to Green Bay City in four relays, after which the boats will cruise together, making all of the principal ports of the bay.

ALEXANDRA, LAST YEAR'S CHAMPION, WILL HAVE SOME NEW BOATS TO MEET THIS SEASON.

On the Inland Lakes

BY ORLO A. BARTHOLOMEW

Yachting, or as it is more familiarly known in the West, scow racing, will never die on the inland lakes. The present outlook for the 1909 season is especially bright, and nothing but a calm summer will be able to deter the enthusiastic sailors already planning for the Inland Lakes Regatta of next August, which will be held on Lake Winnebago.

There was a decided revival of the sport among most of the I. L. Y. A. clubs last year, and the fire of enthusiasm that was kindled is far from being burned out. Many of the boats which were then built are all ready for this season, and are in as good or better condition than when they sailed in the regattas of their first year.

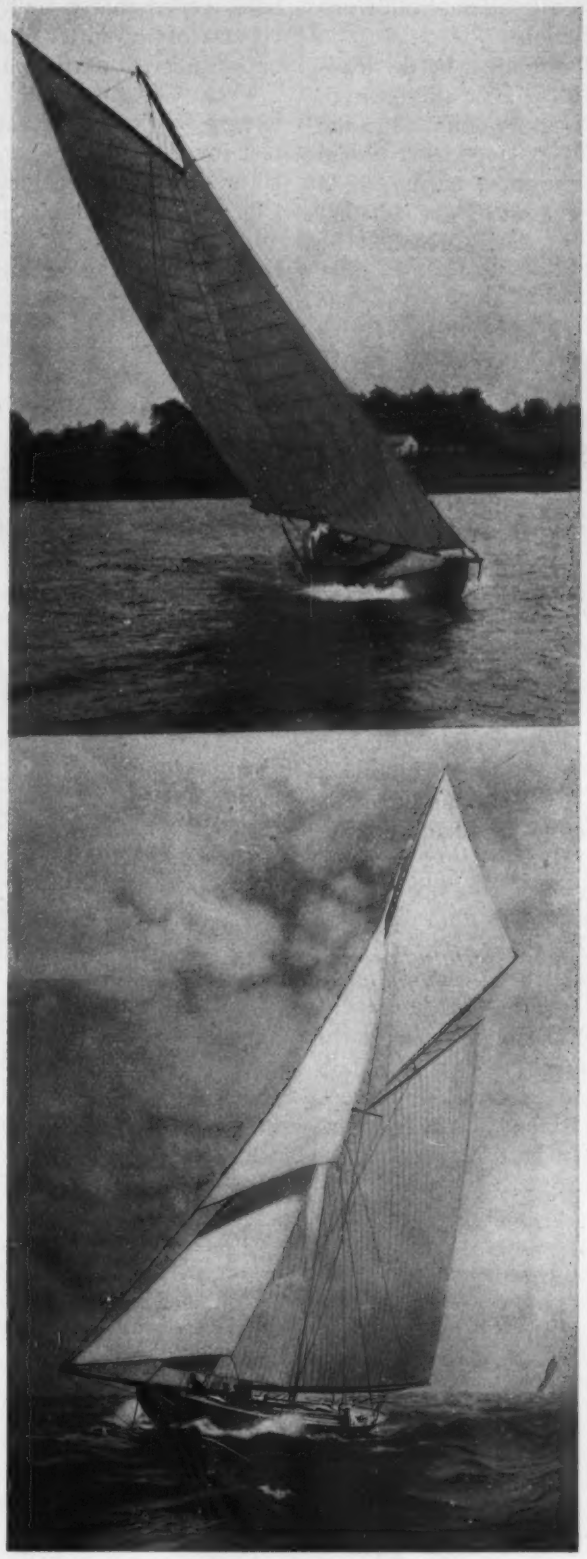
Among the I. L. Y. A. trophy winners of 1908, Troubadour, of White Bear, will be sailed by Jack Ordway, and Butterfly, Class B, of Minnetonka, by Gene Markoe. In Class C, Skip, of Minnetonka, will be sailed again this year, and will probably represent that club in the I. L. Y. A. regatta. The Oconomowoc sailors intend to make her road somewhat harder this year, as they have ordered four new boats of this class.

The Minnetonka and White Bear Clubs will have the greatest number of new boats in Classes A and B, and it will probably be another struggle between these clubs for the I. L. Y. A. honors. Minnetonka will have two new Class A sloops and at least one new Class B boat. Halie Reiter, who took second place in Class A last year with Tomahawk IV, has ordered one of the new A sloops, and great things are expected of her, as she will have the best of everything, from sails to sailors. The other large boat is for Mr. H. S. Johnson, and will be of the same model.

The White Bear sailors will have two new sloops, one of Class A and the other of Class B. The Class A sloop has been ordered, and will be sailed by a syndicate of White Bear sailors, while the new "half-rater" is for Lew Ordway, and will be of the same model as Troubadour, but on a reduced scale. Mr. P. A. Valentine, of the Oconomowoc Lake Club, has ordered another sloop like the Ordway craft.

The Oconomowoc Lake Club is building a new fifty thousand-dollar concrete club-house. It will be the best of its kind in the country and complete in every detail, from the large dance-hall and dressing-rooms on the third floor to the storage rooms for sails and spars on the first. This club has twenty-five races scheduled in each of the three classes, and expect a very active season, as the Northwestern Regatta is to be sailed on their lake.

Motor-boat racing is becoming more popular every year on the inland lakes, and may soon be on an equal footing with sailing. The more progressive clubs realize this, and are scheduling quite a number of races for next season. The conditions on these lakes are almost perfect for the development of high speed, and there is no reason why the sport should not grow. There was but one power boat race in the I.L. Y. A. regatta last year; but the number of enthusiasts is growing rapidly, and it is not improbable that there will be more of these interesting events this year.



CRESCENT, THE WATERTOWN, N. Y., BOAT THAT HAS CHALLENGED THE KINGSTON YACHT CLUB FOR THE GEORGE CUP.

THE OLD CANADA. MUCH DISAPPOINTMENT IS FELT AT THE FAILURE OF THE INTERNATIONAL RACE FOR THE CUP FIRST WON BY THIS BOAT.

Minnetonka and White Bear alone will have fourteen new boats, ranging from 20 to 100 horsepower, and at White Bear there will be a motor boat club organized, which will work in connection with the Yacht Club.

There are two boats of 100 horsepower being built—one for Minnetonka and the other for Mr. L. P. Ordway, of White Bear. Mr. H. J. Horn and Mr. W. A. Hardenberg, also of White Bear, have ordered a 60 and a 40-horsepower racer, respectively. The builder guarantees a speed of 30 miles an hour for the higher powered boats and over 20 miles an hour for the other two. If they come anywhere near these claims, there ought to be some records broken on one of these lakes.

On the Northwest Pacific Coast

BY F. M. FOULSER

The brilliancy of the approaching season bids fair to dazzle any previous efforts on the part of the Pacific Coast yachtsmen. There is much activity in all of the ports north of San Francisco, but the local events fade into insignificance beside the regatta which is to be held the last week of June and first week of July at Seattle in conjunction with the Alaska-Yukon-Pacific Exposition.

Within the last few months a number of new organizations have sprung into life along the Washington and Oregon coasts. The city of Astoria, which for many years has maintained an annual regatta of unique and unusual significance, has recently formed a permanent organization to assume charge of these annual events and to stimulate an interest in local races. Portland and Astoria, both on the Columbia River, are rivals in aquatic sports, and the new motor boat club at Portland, which has been born within a year, is already flourishing, with plenty of members and boats fast enough to go after some pretty stiff records. Even as far inland as Eugene, Ore., interest is being aroused in motor boating, while on any one of the inland lakes one is quite apt to come across an automobile racer of the latest type.

In Northern California a number of new recruits have been won within the past year. Eureka has two clubs, both of which look forward to an active season. The introduction of some crack 21-footers built on the general lines of the Lipton Cup lake champion Spray has furnished an incentive which promises

to keep the builders busy. A recent contest for speedy motor boats has resulted in orders for some new "cracks."

This brings us to Puget Sound, where the advance in yachting is probably more marked this year than in any other section of the country. At Olympia, the State Capital, a new club has been formed; at Port Townsend indications point to a revival of interest in yachting. Tacoma, the prospective rival of Seattle, has entered the game with a new club, a new club-house, breakwater, anchorage, and a membership of over a hundred of the most influential citizens. At Bellingham, Wash., a new motor boat club has been formed on Lake Whatcom, and the members are erecting a new club-house and planning a series of speed events. There is also a good prospect that the two yacht clubs at Bellingham, located on the harbor front, will amalgamate to build new and adequate quarters. The city of Everett, which, barely a year ago, looked askance upon the possibility of maintaining its yacht club, now has a flourishing organization of nearly 200 members, a swift challenger for the International 29-foot class, and a $500 cup has been offered for a one-design class, besides other valuable trophies.

The interest of the entire Coast, however, will be centered at Seattle, where the Exposition regatta will attract a fleet of approximately 500 pleasure craft. These races will be held under the general supervision of the Northwestern International Yacht Racing Association, which is the governing body in sailing races on Puget Sound, and the Pacific International Power Boat Association, an advisory body to the entire Pacific Coast, founded within the last year.

The regatta opens with the long-distance power cruising race from Vancouver, B. C., to Seattle, over a course measuring approximately 225 miles. The entries for this event will be divided into five classes of from 30 to over 60 feet, which will conform to the general restrictions used in the Marblehead event. A consolation class for those boats ineligible to this rule will be sent over the course. Further details of this race may be obtained by writing to F. M. Foulser, secretary of the P. I. P. B. A., Seattle.

Following this event comes the regatta proper, which will be in charge of the Elliott Bay Yacht Club and the Motor Boat Club of Seattle, with headquarters on Lake Washington. Both of these organizations are making special arrangements for entertaining the thousands of yachtsmen who are expected to attend.

Among the windjammers the most anticipated event is the international race for 29-footers, for which the two contestants will be selected this year from a field of six or eight trial horses. Seattle will have a new representative. So will Tacoma, Vancouver and possibly Victoria; while Spirit, vanquished last year, but now owned in Victoria, Alexandra, last year's champion, and Rival, of Everett, will also race for the honor of defending or competing for the Alexandra Cup.

A new class of 18-footers has been inaugurated since last year, and it is hoped that enough of them will be built to furnish an international contest with three representatives on a side.

For the motor boats, interest centers about the trophies which this committee is prepared to offer in order to secure the fastest entries in the various classes. There will doubtless be a world's championship for the 30 or 40-foot class, a hydroplane race and a 60 or 90-mile endurance race. H. A. Chadwick, Arcade building, Seattle, is chairman of the committee in charge of events.

What Canada Will Do in the Coming Season

BY C. H. J. SNIDER

Canadian yachting for 1909 will be of a less international character than it has been for years, judging from the present outlook. The sport has struck another of those doldrums such as rolled it

(Continued on page 334.)

Cruising Race Around Long Island for Yachting Cups

AS we mentioned in our last issue, YACHTING has offered, through the Atlantic and New Rochelle Yacht Clubs, a trophy for a long-distance cruising race around Long Island. This race will be started Saturday, July 31, and the following are the general conditions:

Course — From Gravesend Bay to and around S. W. Spit, thence around Montauk Point, through Long Island Sound to Echo Bay, New Rochelle. Distance, about 210 nautical miles.

Start—Between Atlantic Y. C. Committee boat and mark boat flying white ball and club flag anchored in Gravesend Bay. Time of start, 10 A. M., July 31.

Finish—Boats in finishing shall pass south of Committee boat, which will be anchored about 100 feet south of Hicks Ledge buoy, off Echo Bay, New Rochelle.

Measurement—Boats will be measured on over-all length only. The race will be open to all boats of 50 feet over-all length and under, regardless of rating, enrolled in a duly organized yacht club.

Time Allowance—Twenty-five minutes per over-all foot for the course. (Basis 7 sec. per foot per mile.) An extra allowance of 5 per cent. for yawls. Auxiliaries will also receive an allowance of 5 per cent.

Crew—The minimum limit of crew is four men, and one additional man must be carried for each 5 feet of measurement over 35 feet. No restrictions as to crew, but only Corinthians may steer.

Sails—No club or sprit topsails shall be carried; otherwise no restrictions as to sails.

Cruising Trim—Yachts shall be considered in cruising trim when they carry lead line, compass, charts, fog-signal, two anchors and cables, one life preserver for each member of crew, with two extra life preservers or rings on deck, the regulation lights and their cabin fittings, tanks, etc., in place.

Auxiliaries—Auxiliaries must report to the committee not later than 3 P. M. of day preceding race for ensealment of engines.

Protests—Verbal notice of protest must be made to judges within 15 minutes of finishing, and be followed in one hour by a written statement of the facts on which it is based.

Four prizes are offered the boats sailing in one class. First prize, a valuable silver cup or bowl. A trophy will be given to every boat finishing the course.

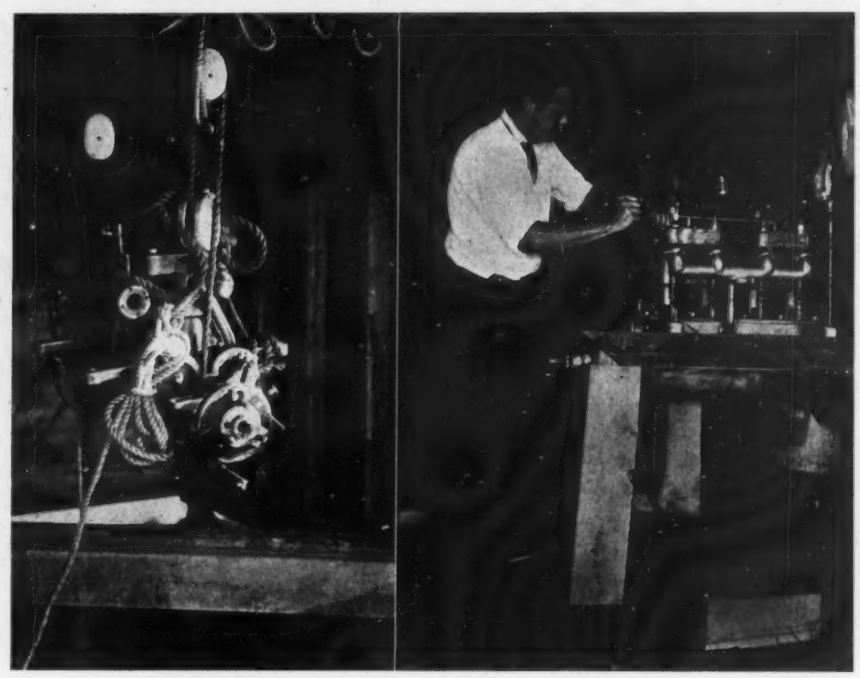
Entries—Entries close July 24, and must be accompanied by certificate of measurement signed by the measurer of club through which the boat enters. Yachts must report to committee at least twenty-four hours before start.

Entry blanks containing full conditions of the race may be had from the regatta committee of the Atlantic Y. C., New Rochelle Y. C., or from the office of YACHTING, 20 Vesey Street, New York.

Preparing the Power Boat for its Season's Work

By HAROLD WHITING SLAUSON

THE old adage, "If you would have a thing done well, do it yourself," applies in a large measure to the rejuvenation of a power boat and engine and its preparation for the season's outing following a long winter's rest. Of course, there are many operations in this connection which the average boat owner cannot look after himself, such as attention to the bearings, valves and piping, which require the services of a first-class machinist; but, as a rule, the simple taking apart and cleaning of the ordinary marine motor is a job which can easily be performed by the operator possessing only ordinary mechanical ability. If the owner looks after these details in person, not only is a thorough overhauling of the motor and boat assured, but he will be able to familiarize himself with the details of construction and "interior arrangements" of the power plant as he can in no other way, and will thus be much better prepared to locate and remedy any trouble affecting the running of the engine which may subsequently arise. It is to be assumed that the average power boat owner is familiar with the methods of preparing the hull for the water, for it is probable that he has been the possessor of either a sailboat or rowing skiff before the small power craft came into use. It is the careful attention and thorough overhauling necessary to be bestowed on the engine which will require the greatest amount of time and patience, and it is the purpose of this article to show what is necessary to be done in this line, and the best way in which to do it.



REMOVING MOTOR FROM BOAT. THIS IS NECESSARY WHEN CHANGES ARE TO BE MADE IN THE BED.

IF THE MOTOR IS REMOVED FROM THE BOAT ALL PARTS ARE MADE ACCESSIBLE.

Before starting work of any kind on either boat or engine, the propeller shaft should be disconnected from the crankshaft of the motor, so that the former will not be bent by any strain on the hull owing to an uneven distribution of weight or the poor location of the supporting timbers. It is advisable to disconnect these two shafts the preceding autumn, before the boat is hauled out of the water; and, if this is done, any slight twisting or warping of the keel or hull will not affect the propeller shaft. It is very important to protect this shaft, for, once out of line, great difficulty will be encountered in straightening it again. It is quite probable that the center or stern of the hull will have sagged somewhat during the winter, and, in consequence, it will be found that the two shafts do not line up properly. A few days in the water may restore the hull to its proper alignment; but if it does not, the stuffing-box on the log may be shifted until the coupling plates on the ends of the shafts "face up" accurately.

If the stuffing-box is not provided with slots so that its position can be changed easily, it may be found advisable to shift the motor a little on its bed. A few thicknesses of tin placed between the bed-plate or lugs and the foundation of the engine will generally be found sufficient to give the proper alignment to the shafts. Of course, these hints for the proper alignment of propeller and crankshafts do not apply to four-cycle motors and others using a universal joint as a coupling, for these adjust themselves to the proper line, regardless of the warping or settling of the keel.

In all motors, both of the two-cycle and four-cycle types, a deposit of carbon, or hardened soot, is certain to be formed on the inside of the cylinder heads—even after only a few months' operation; and, if allowed to remain, this becomes a fertile source of pre-ignition and overheating of the engine. Most marine motors have removable cylinder heads, and in these the interior is made accessible by the loosening of a few bolts. In some of the smaller engines, however, the cylinder is made in a single piece, and in designs of this kind the whole casting must be removed from the bed-plate, which contains the lower half of the crank case. After the cylinder or cylinder head has been removed, so that the interior is accessible, the carbon deposit should be loosened by the application of kerosene and then scraped off with some sharp, flat instrument, such as a putty knife or broad-ended screw-drver. For scraping the cylinder walls above the piston, the former tool is the best available, for its broad side may be used to good advantage and be made to cover a large surface at each stroke. Special tools are, however, made for scraping the cylinders.

Since high efficiency in a gasolene motor depends to such a large extent on good compression, it is necessary to examine thoroughly the condition of the piston rings to see that they are neither stuck, broken, nor unduly worn. It frequently happens that the cylinder oil will become gummed or that carbon will form between the ring and piston. When this happens, the ring is almost sure to be held tightly in its groove, so that it cannot properly perform its function of retaining compression by conforming in shape to the curvature of the cylinder wall. If the motor has been operated for some time with the ring in this condition, a crack is almost certain to occur. If, however, the ring is merely stuck and not cracked, great care should be taken in loosening it, as the cast iron of which these rings are made is brittle beyond a certain point of bending, and is liable to snap in two if too much force is applied at one place. After the ring has been loosened so that it works freely in its groove, it should be removed and its sides and all parts of the piston with which it comes in contact should be thoroughly scraped and cleaned.

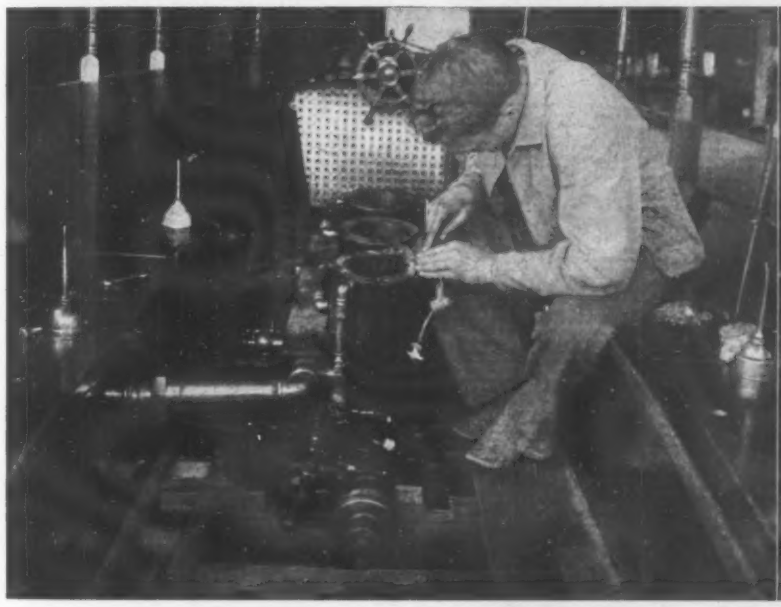
The best way to remove a ring is to spread one end out of its groove so that it rests on the outer surface of the piston. Now place behind it, in the small opening thus formed, a small, stiff wire. By working this wire around the piston toward the other

end, the ring will follow it and leave its groove, taking the position on the outer surface of the piston as occupied by the first end of the ring. A screw-driver or some kind of wedge should be used to prevent the part of the ring already out of the groove from slipping back. After cleaning, scraping and oiling all the grooves and rings, the latter should be returned in the same order in which they were removed. This is important, for, although the exterior appearances may be the same, each ring is ground to fit its own particular groove. The operation of fitting and grinding in new rings is a rather delicate and tedious one, and, if possible, should be left to the greater experience of some first-class machinist.

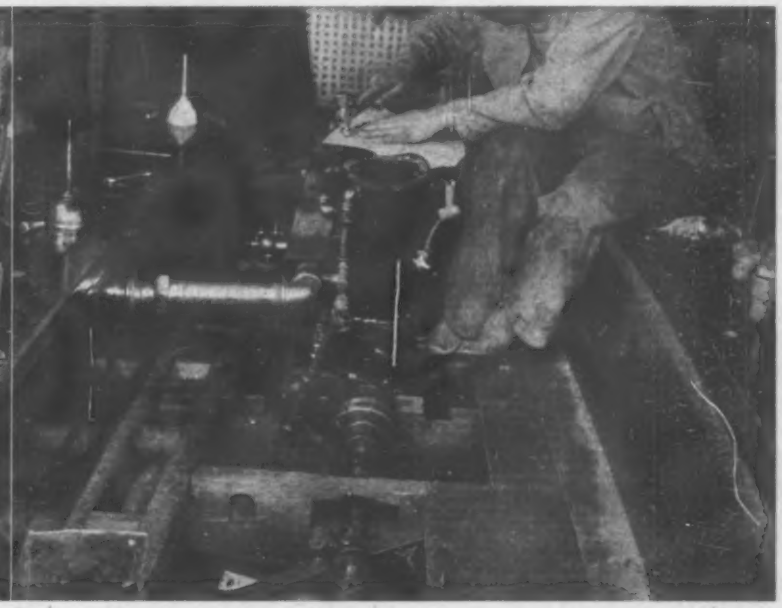
Although a set of rings may be, to all appearances, in perfect condition, without a flaw, break, or sign of carbon deposit noticeable, it nevertheless often happens that some of these may "leak gas" so badly as seriously to interfere with the running of the motor. This will generally prove to be the case if any of the rings are blackened in places, caused by the continuous rush of hot gases past that portion where the fit is not perfect. This poor fit is often caused by a lack of oil in the cylinder, and the attendant "scoring" of the cylinder and the rings allows the compressed charge and exploded gas to leak out. In replacing the rings, care should be taken to make certain that the notches in the ends of each fit perfectly around the small pin which should be found in all the grooves.

Before replacing the piston, the connecting-rod bearings should be examined for signs of wear, and, in case the motor has been misused through lack of lubricating oil, it is probable that new babbitts will be needed. This is another operation which will probably require the services of a machinist. If the bearing is found to be only slightly loose, but no uneven wear is apparent, the owner himself may remedy this trouble by removing one or more of the thin pieces of metal, or "shims," which are used to separate the two halves of the bearing in many of the better grades of motors. The bearing should be so set that, when the bolts holding the two halves together are drawn down tight, no "play" will be observable between the connecting-rod and crankshaft—and yet the one should not bind on the other. It must be remembered that a tight bearing will heat and "burn out" quickly, and to provide against this all newly-set bearings should be supplied with an abundance of lubricating oil for the first few days after being put into commission. These same precautions and rules apply also to all of the main bearings of the crankshaft. As each ring, bearing, shaft, and in fact every moving part of the motor, is replaced, it should be thoroughly oiled. The crank case should be cleaned out, and if, as is the case with most marine motors, the splash system of lubrication is employed, fresh oil of the best quality should be poured in to a depth sufficient to allow the brush or scoop on the bottom of the connecting-rod bearing to become well immersed at the finish of each downstroke. If a small brush or wiper is found on the bottom of the connecting-rod bearing, it should be soaked in kerosene, to loosen and remove all old or gummed oil which may have adhered to it from the preceding season.

Whether the whole cylinder of the motor is removed or the head only, it will probably be found that the thin piece of packing will be broken or destroyed. In many motors, this packing, or "gasket," is very important, as it prevents the jacket-water from reaching the interior of the crank case or cylinder, and helps to maintain the compression in whatever part of the engine it may be located. Of course, in the four-cycle motors, which do not use a crank-case compression, the gasket may seem less important; but even in this case it is necessary to prevent the oil from leaking out. After the cylinder or head has been removed, the old gasket should be scraped off and the parts of the motor with which it came in contact should be made clean and bright for the application of the new piece of packing.



REMOVING OLD GASKET FROM CYLINDER HEAD.



CUTTING NEW GASKETS FOR THE CYLINDER.

In many motors this packing may be formed of a rubber composition; but in most cases it is doubtful if this is any better, or as good as, a few sheets of heavy brown wrapping paper, which, if applied in the proper manner, make as satisfactory and serviceable a gasket as can be found. These may be cut to the proper shape by placing the sheet of paper over the surface to be fitted and following the edges and contour by tapping gently with the small, rounded end of a machinist's hammer. All jacket-water and bolt holes should be passed over in this way, and it will be found that the paper will be cut accurately to the proper shape. Bolt holes, of course, should not be struck very hard, as this would be liable to damage the top thread; but the fibre of the paper will be broken, so that the piece may be removed easily with the fingers. Shellac should then be applied to the surface of the motor where the gasket is to be placed, and the first piece of paper laid on. This, in turn, should be shellacked before the next gasket is set in place. Proceed in this way, making a sort of shellac and paper sandwich, until the three or four pieces of gasket have been used, and then bolt down the cylinder or head

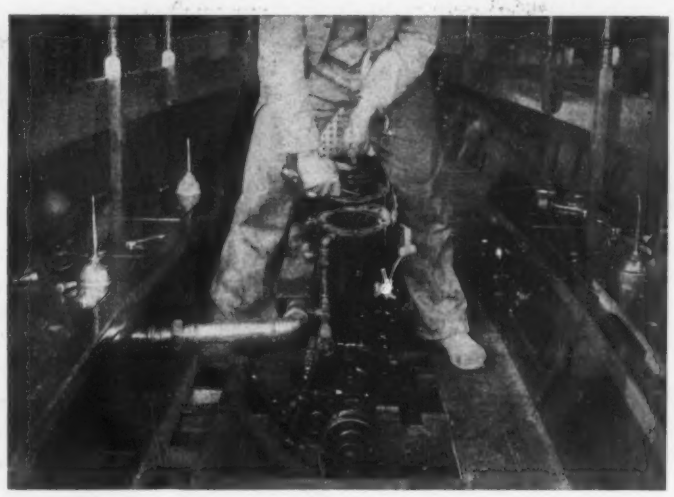
firmly in place. In this manner each sheet of paper is separated from the next one and from the metal by a coat of shellac, which will fill all the small air spaces and result in a compact mass sufficient to prevent the leakage of gas, oil or water.

This form of gasket will not serve for use around the muffler or exhaust pipe, for the excessive heat found in these places would soon burn the shellac and paper. For such localities, a special form of asbestos packing is made, which will withstand any degree of heat, and which can be very easily applied. A single thickness will generally be found to be sufficient, and this can be cut out in the same manner as the paper gasket and merely laid on the joint.

When replacing the piston of a three-port, two-cycle motor cylinder, great care should be taken to make certain that the baffle plate at the top is facing the proper side of the cylinder. This baffle plate is used to deflect the incoming charge upward and away from the exhaust port, which is open at the same time that this fresh mixture is entering. If the piston is turned around so that the baffle plate is on the other side, the incoming charge may pass directly over to the exhaust port and much of it be lost at each stroke. Inasmuch as it is this type of engine which depends on its crank-case compression for the efficient entrance of the new charge and the scavenging of the cylinder, it is necessary that the plates which are sometimes used to make the lower part of the motor accessible should have well-made gaskets; and it is the neglect of these which often causes poor results in the running of an otherwise good machine.

REMOVING RINGS FROM THE PISTON.

The timer of a gasolene motor should, of course, be kept clean at all times, and a thorough overhauling of it is advisable at the beginning of each season. The springs holding the brushes or contact points against the revolving commutator should be removed and strengthened by being stretched out slightly. The fiber and copper segments of the commutator should be cleaned thoroughly, and if one has been worn more than the other, the resulting ridge should be cut or filed down, so that the brushes will not catch and the contact will be smooth. Many timers are designed to run continually in oil or grease; but, in any event, the lubricant of the season before should be removed from all parts and plenty of gasolene or kerosene used in cleaning them.



REPLACING PISTON IN CYLINDER. CARE MUST BE TAKEN NOT TO DAMAGE THE RINGS AGAINST THE EDGE OF THE CYLINDER HEAD.

Although a motor may run for a time with a defective lubricating system, the final result will surely be more disastrous than the failure of any part of the engine to work properly, and, in consequence, this part deserves especial care and attention. The sight-feed cups feeding to each cylinder—and possibly to the crank case—should be removed, and the valve at the bottom of each cleaned of any old or gummed oil. If the cup is filled with kerosene, shaken well, and the liquid then allowed to drop out slowly, the glass will be made clear and all passages rendered entirely free from foreign matter. The small pipes leading to the various parts of the motor should be removed and kerosene squirted through until it is certain that no obstruction to the free flow of the oil remains in them. If the lubricating system is of the pressure-feed type, the pipe which conducts the gas from the cylinder to the oil tank should be removed and the small automatic check valve inspected, to make certain that no loss of compression can result from leakage in this part. Most of the oil drips should be set for a slightly faster supply, for it must be remembered that all new pieces or any readjusted old parts of the motor will require a greater amount of lubricant at first than will be the case when they commence to wear down and the engine is limbered up.

Before filling the fuel tank with gasolene, it should be seen that no sediment, scale or pieces of solder have remained in the tank from the previous season. Care should also be taken to see that the feed pipe line is absolutely free from foreign matter, and that the gasolene will continue in an uninterrupted flow from the tank to the carburetor. The strainer, which is often located in the supply pipe near the carburetor, should be removed in order to dislodge any particles which may have adhered to the wire gauze. The float chamber should be filled with gasolene and the needle valves first opened wide and then screwed down, in order to dislodge any particles that may have accumulated in the small openings. Care should be taken to readjust the needle valves to exactly the same position which each occupied originally, as otherwise the proportion of the mixture will be so changed that the motor will not operate. The float chamber of the carburetor should then be drained by removing the plug or turning the cock in the bottom, thus allowing all sediment and foreign matter to run off with the gasolene.

The wiring of the ignition system will require considerable attention each year. All broken terminals should be firmly soldered and each connection scraped bright, to remove all dirt and grease and insure a perfect contact. Any high-tension wires which may have remained in contact with grease, oil or gasolene during the winter should be replaced immediately, as these hydrocarbons have the effect of dissolving the insulation and rendering the conductors liable to annoying short circuits. A broken or damaged covering in the primary, or low tension, wires may be repaired with insulating tape.

For motors of the four-cycle type, the valves should be removed, and these and their seats freed from the carbon and ground to a perfect fit. This is an important operation for this type of engine, for should these valves be left in a pitted and dirty condition, much compression and force will be lost by leakage through the imperfect contact of the valve with its seat.

The Handling and Care of Sails

By Adrian Wilson

WHILE sailmakers, as a rule, say but little about the cutting and making of racing canvas, it seems as if it would be to their advantage, as well as to the advantage of those for whom the sails are made, if the latter were given an intelligent understanding of why certain things are done and were instructed in the proper care of sails, to the end that they might get better results and the careful work of the maker would not be, to a large extent, thrown away by ignorant or careless handling. It is a fact that more poor sails are made on yachts than in sail lofts. By which I mean that as much, or even more, depends on the intelligent handling of sails as in their making. The sailmaker can employ all his skill and knowledge on the construction of a suit of sails, only to have them thrown away by the mis-handling it receives when put on board the yacht.

By way of introduction to this subject of the proper handling of sails, I would say that the theoretical idea of having the sail a perfect plane is carried to the extreme in sails of English manufacture. I believe that the idea of a sail being a perfect plane, starting at the luff, or mast, and going in an absolutely straight line to the leach, giving a surface that allows the wind current to pass across the sail and escape at the after leach, is not correct. But if the sail can be so constructed that the wind entering into its surface strikes the sail at an angle slightly divergent from its true course or direction, it strikes the canvas with a greater impulse, and should give the sail more push.

This is the theory of draft, on the proper application of which so much depends. This idea of draft does not mean that the sail should be a bag, or approach bagginess in any degree. There is a vast difference in the meaning of the two terms. To understand fully the importance of proper handling of sails, one must bear in mind constantly that all canvas or duck will stretch, the amount of stretch depending on the material of which it is woven. Up to about the year 1840 or thereabouts all sails were made of flax. Since that date cotton fiber has come into general use in this country in the manufacture of canvas. The great advantage of cotton fiber over flax is that it does not stretch so much, and will not come and go to such an extent with the changes of the weather. If we take a piece of duck or canvas and subject it to a strain, it will, if pulled lengthwise, stretch, for the reason that the corrugation caused by the weaving process, and also from the spiral caused by the twisting of the single yarns together, give and stretch; but, while it stretches in length, it will, at the same time, become narrower.

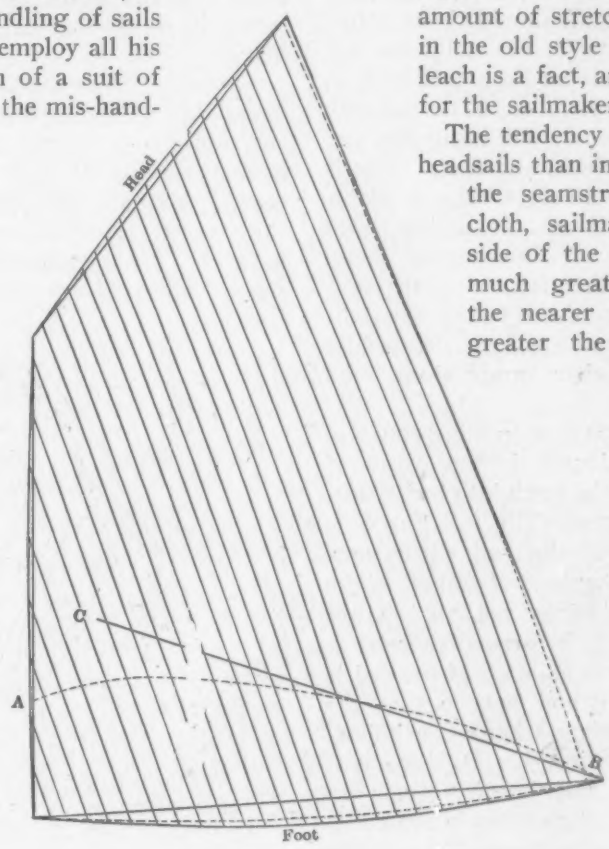


FIG. I.

As all duck will stretch more lengthwise, in line with the warp, than crosswise, we have of late years adopted the method of making sails which are termed crosscut. The greatest strain to which a sail is subject is from its clew, or that corner of the sail attached to the outer end of boom, on a line drawn from that point to the center of effort in the sail. That we have a smaller amount of stretch to contend with in crosscut sails than in the old style of cloths arranged parallel to the after leach is a fact, and makes the problem a much easier one for the sailmaker.

The tendency to stretch has always been greater in headsails than in the other sails. What our mothers and the seamstress would call a bias in a piece of cloth, sailmakers know as a gore or the diagonal side of the cloth. As the stretch in a cloth is so much greater in its length or warp, of course the nearer this gore comes to line of warp the greater the stretch. This unquestionably occurs to a greater degree in a headsail cut with cloths arranged parallel to the leach. A great part of the work of sailmakers to-day goes to the amateur yachtsman, and, as the crosscut arrangement of the cloths means less stretch, the problem of working out the sail is much simplified.

In the making of sails with cloths perpendicular to the leach certain rules have been established for working draft into the body of the sail. If it were intended to make this sail a flat plane, it would seem that all that were necessary would be to cut on the loft floor a sail whose four sides would be straight lines, sew it together and bind the edges with rope, to insure the proper amount of strength. If made in this way it would not stand, as the wind pressing against this surface would produce results which no canvas, no matter of what fiber it was made, would have sufficient strength to stand, and it would tear at the points at which it is attached to the spars.

This is counteracted by certain curves put into the sail, which, when cut and sewed together, have the appearance of Fig. 1.

If the sail were cut with the four sides straight, the result would be, when the body of the sail filled with wind, that the center of the boom would be lifted into an arc above a straight line.

The tendency of the head to do the same in an opposite direction would result in a light place through the center of the sail. So curves, or, as sailmakers call them, roaches, are cut at the foot of the sail. There is a considerable roach, and it is our object to invert this curved line, or part of it, into the body of the sail, as shown by the dotted line *A-B* in Fig. 1.

A sail made in this manner must be worked out on the yacht when in use by the most careful handling. These sails are made of a woven material extremely light, when compared with their areas, and are liable to be strained out of their proper shape very easily by not being intelligently handled. The stress of the weather alone is very severe on them. In hot, dry winds the canvas goes out beyond its normal dimensions, and, when wet, shrinks inside of the same. They must be watched very carefully, and should not be pulled too hard when dry, and should always be slacked in when wet. If the sail is a good one, under normal conditions it should never be strained out so that any undue strain can come on the line marked *B-C*, Fig. 1. This quickly takes all the draft from the body of the sail; and if the sail is allowed to get thoroughly wet; with the clew pulled out too far on boom, the shrinkage on line *B-C* puts an undue tension on the canvas, and the sail becomes hard on this line, and its most important factor—the draft—rapidly disappears.

It also tends to hollow the line of the leach, which is always an indication that the sail is losing some of its best points. A new sail should show some considerable outer curve, and, when fully stretched to its dimensions on boom and gaff, should show a true, straight leach. One of the greatest obstacles the sailmaker has to contend with is the tendency to pull out on boom and gaff as soon as a little slack shows in head and foot ropes. The sail may be perfectly dry and the ropes the same. It will naturally, under these conditions, show some slack at head and foot. This is only on the edge of the sail. Its body is all right. Let it alone. It is doing good work. If pulled out, it gets an undue strain diagonally from end of boom and gaff. It may become damp from the late afternoon dew or from a little fog, when the fullness is immediately taken up, and if it has been pulled out tight when dry, this shrinkage is going to stretch the sail, especially at the clew and along the leach.

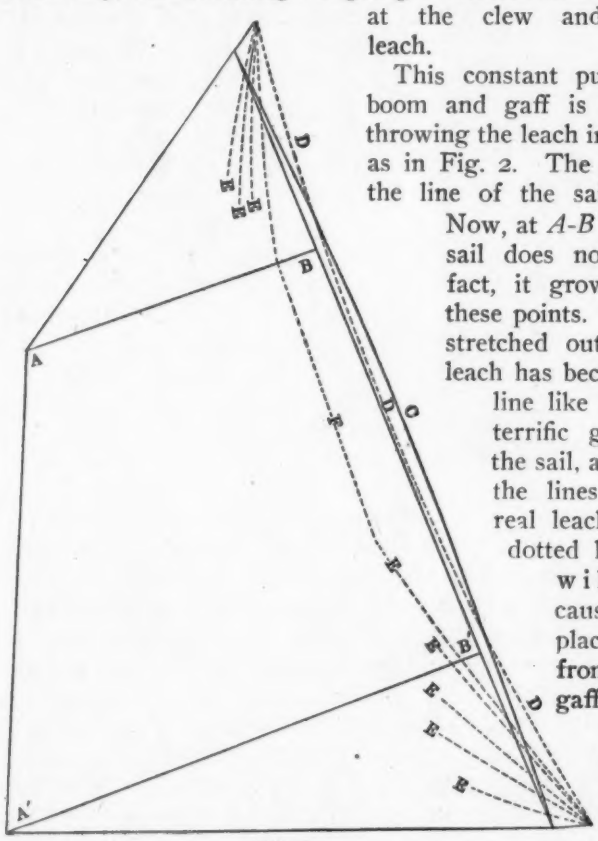


FIG. 2.

This constant pulling out on boom and gaff is the cause of throwing the leach into bad shape, as in Fig. 2. The full line *C* is the line of the sail when new. Now, at *A-B* and *A'-B'* the sail does not stretch; in fact, it grows shorter at these points. If the sail is stretched out so that the leach has become a hollow line like *D*, there is a terrific girt strain in the sail, as indicated by the lines *E*, and the real leach is at about dotted line *F*, which will invariably cause a tight place in the sail, from boom to gaff, just forward of this line *F*. The greater part of our effort as sailmakers is to construct our sails so as to overcome this very thing. This not only causes trouble at the leach of the sail, but it has pulled all the draft out of the forward body of the sail, and it has become a flat surface from luff aft to a badly-setting leach. Yachtsmen seem to be possessed with the idea that every bit of slack canvas must be stretched so that the sail is like a drumhead. While this may produce an entirely smooth surface, the very elements that constitute a fast sail may be destroyed.

As canvas stretches more in the diagonal than in the other direction, it should be our object to relieve this diagonal strain as much as possible. As pulling out on the boom and gaff tends to increase the diagonal strain, it should be avoided as much as possible.

The same advice applies to setting the sail and keeping it properly set while in use. If the sail is not properly set at first, it cannot show to its best advantage. One grievous fault is that of not setting the peak up to its proper angle. In these days of steel halyards there is no excuse for not having a sail set right at the start. In our experience, we have had many complaints of a sail having a bad leach, or the complaint would be that the leach was tight. On investigation, the fault would be found in the fact that the sail had never been set to the angle at which it had been cut. In many instances of this kind the complaint would often be that the boom was too low. In investigating the complaint, the sail would be set under personal inspection, and there would be no tight leach, and the boom would swing at its proper height.

Figure 3 shows a mainsail on which the peak angle is 60 degrees. If, in setting up the peak, it should be hoisted until the sail is perfectly smooth and shows no wrinkles, the result would be that, after a half-hour's sailing, the give of the halyards and slip caused from the belaying of same on cleat or pin would cause the sail to settle down; also the give of the canvas would have to be accounted for. The sail would assume the shape indicated by the dotted lines, and an undue strain would take place through the line *A* from *B* to *C*, causing the boom to drop down to dotted line *D*. The sail, if cut at 60 degrees peak angle, should have been set at 62 degrees, or enough to allow for the settling of the peak. A great many yachtsmen think that a mainsail should be hoisted until it is perfectly smooth. I trust you can now see that it should be set above that point in reality. When first hoisted it should show a considerable body of wrinkles under the jaws of the gaff, as indicated by lines *E*. The fact that the end of the gaff has settled down below the designed angle,

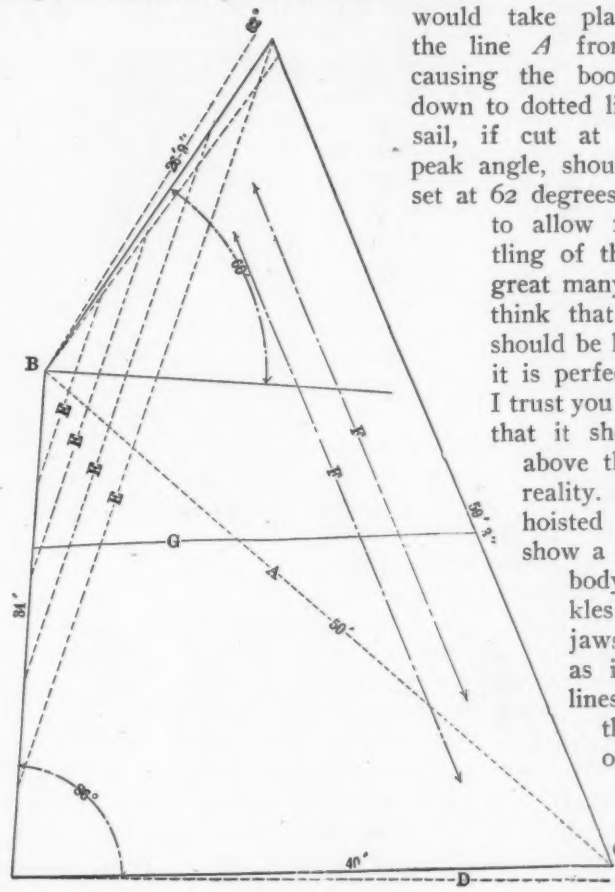


FIG. 3.

and at the same time the boom has also dropped to a point below plan, causes an undue strain on the canvas below line *B* to *C*. That is, the forward triangle has to take the whole weight of the sail, and instead of showing its true shape of a curve in forward body of sail, it is thereby stretched until it is as flat as a board. Above *B-C* the sail is also in bad shape. It is more than likely that the sail is showing a hard place in the after body. extending about as indicated at lines *F-F*, and at the same time the leach has a tendency to be tight. In fact, the surface of the sail would look something like line *G*. We have never known a case of a sail being spoiled by over-setting the peak, but have occasion very often to caution our customers to be sure the peak is well set up. When first set, the sail should show plenty of fullness in luff. The peak should be set until the sail wrinkles from gaff to luff. This may look to the yachtsman as if he were getting his peak up so much as to throw his sail all out of shape; but after the yacht is under way a short time it will be seen that the sail has come to its proper form, and is doing its best work. By setting the sail in this way it is sure to show a perfect leach, free enough to just tremble a little, but not so free as to slap or roll. Also, when sail is reefed great care should be taken not to pull the reef ear-ring or reef cringle out too far on boom, for in doing this it acts just the same as pulling foot too hard.

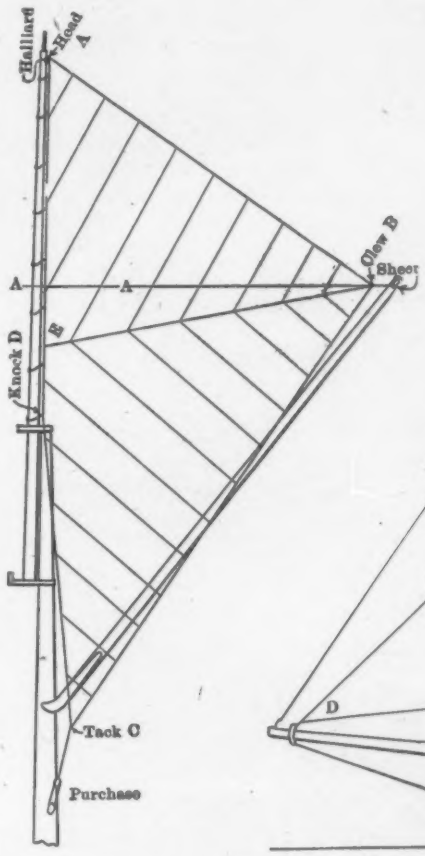


FIG. 4.

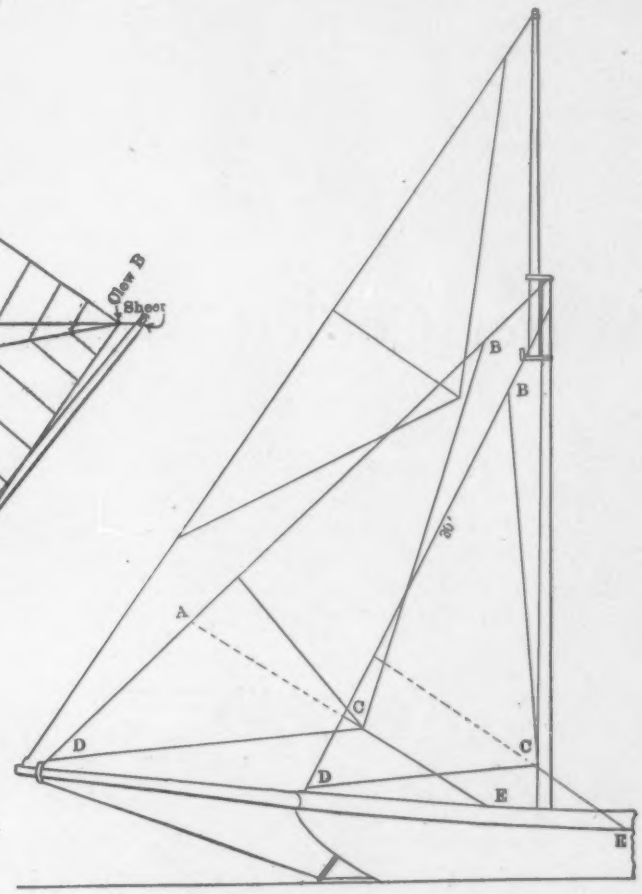


FIG. 5.

These are some of the details so necessary for a yachtsman to know, and so valuable that, if followed, a good sail will always remain a good sail, and a poor sail may be worked out into a fairly good one. The setting of topsails is so important a matter as to be almost a chapter in itself. The topsail should be set as follows: (1) Hoist sail; (2) tack down—the tack should be provided with a strong purchase, such as a reef-tackle purchase, or else it should be tacked down at the winch; (3) sheet out. This should be done last of all. The sail should be so hoisted and tacked down that, when sheeted out, the clew is exactly in a right angle drawn from the end of the gaff to the topmast, as indicated by line marked *A*, Fig. 4. If the sail is hoisted so high on the topmast that when sheeted out the clew is above the line *A*, the sheet pulls down the leach, and not only makes a tight leach, but the foot is not taut, and will always flow away to leeward.

If the sail is not hoisted high enough the opposite occurs, and the foot is too tight and the leach slack. If we were to ask a sailing master to haul the jib sheet taut before the jib was hoisted to its place, very probably he would laugh at us and say it was an impossible thing to do. So it is with the topsail. It is a triangular sail, the same as the jib, and should be stretched on its luff before it is pulled out on the sheet. The object to be attained in setting the topsail is to put an equal strain on all three sides of the sail—luff, leach and foot.

It is a difficult matter to tell exactly when the sail is hoisted to the proper height on the topmast, and it is better to make several attempts and get it right than go ahead and spoil it and have an unsatisfactory sail, or blame the sailmaker. Either go aloft on the masthead and see that the clew *B* is on a right angle from mast to end of gaff, or, what is better, go off a little distance from the yacht in a small boat, and at a point at right angles to the yacht, when you can always see if the sail is at its proper height.

One must also bear in mind that when the topsail is new the mainsail is generally new also, and that as the peak stretches up the topsail stretches out. Thus considerable allowance has to be made for this stretching of the topsail, which is usually cut somewhat smaller than the space it is finally intended to fill. Great care must be taken to see that at first it is set in its proper position. The mainsail will stretch up, and, as a consequence, the allowance for this stretch must be taken into consideration, and whenever the mainsail goes up the whole topsail must go up with it. It will also be necessary to make some allowance for the stretch on luff of topsail, and it will not do at first to hoist the sail "two blocks" over a new mainsail.

When it comes to headsails, great care has to be taken in the planning, as well as in the handling. These sails have always presented the hardest problem for the sailmakers to solve. They have, to a certain extent, overcome the difficulty in setting headsails by fitting the luff with wire rope instead of the old hemp bolt rope. It will often be found that the leach is too free and inclined to whip. If it is fitted with a hemp luff rope, it is probable that the sail is not properly hoisted, and a pull on the halyards will remedy the fault. This extra pull on the halyards should not be taken until the sheet has been slacked off a bit.

My personal experience has taught me that the best headsails are those that are cut with high clews, both in the jib and forestaysail. The position of the clew should be so located that the lead of the sheet will be to a point on deck, or at the rail, that is not only going to be convenient, but so placed that the sail will do its best and most efficient work.

On the small-class yachts it is an easy matter to get the proper location of the jib sheet leaders in the following manner: Hoist the jib to its proper height on the luff, and fasten a temporary sheet to the clew of the sail. Lead this aft to a point on rail so that you are bringing an exact, even strain on both leach and foot. Now, by going just a trifle further aft with your sheet, you relieve the strain on leach of sail, insuring a good, free leach. The sail when filled with wind will rise a little above the line of the point first found. This plan works in all headsails, but the same

idea of the lead of the sheet in setting topsails will not work out in headsails, as the point of contact of the sheet to deck or rail is not on a right angle to the stay.

On larger craft, when it is not practical to find the true lead as above, it will be found necessary to locate the leads from the sail plan. As can be seen by referring to Fig. 5, a plan that works out all right for a forestaysail and jib will not apply to a jibtopsail. The sheet for the jibtopsail will lead at nearly a right angle from the stay, intersecting the clew of the sail. As the jibtopsail sheet can be shifted fore or aft on the deck, this can be adjusted to get both leach and foot to stand as desired.

Another important point in headsails is to use great care in designing them, that they will not be too large for the spaces they fill; that is, to avoid having one headsail overlap another. The clew of the forestaysail should not come aft of the mast. The jib should overlap the forestaysail but very little, as the luffs and leach near the heads or upper parts are coming close to each other, and the wind, passing from the outer sail, will strike the one next aft and cause it to lift from the lee side, which, of course, is to be avoided.

The handling and care of sails are very important items. It has always been the custom to haul sails out on the boom and gaff and make them fast to the spars permanently. The mainsail and foresail on a yacht should be slacked in on the boom and gaff when not in use. If the sail is at all damp or wet, it puts an undue strain on the head and foot ropes; and if allowed to stand in this condition until it dries it becomes stretched, which should not be allowed to happen; so it is safe to slack the lashings at the end of the gaff, and slack up the outhaul on foot when furling the sail, so that it may dry out without being strained. Also, in furling sails it is a custom to roll the sail up tight and snug. This should be avoided. The sail, as it is lowered down, should be folded back and forth across the top of the boom and secured with the sail stops. The stops should not be put between the foot rope and the boom, but should pass over the gaff and under the boom. If placed between the foot rope and the boom, the stops, when pulled taut, stretch the foot rope, which should be avoided.

Sails when dried after being wet should be hoisted, if possible, to their exact shape, so that all parts of the canvas will be subject to the same strain. Then all parts will dry with an even strain, and should dry out alike.

I trust that what has been written here may be of benefit to all who use sails, whether on a small boat or large, and give all those who are interested in the sailing yacht a better understanding of the principles involved in the making of sails, and, consequently, a more intimate knowledge of how they should be handled to get the best results. If it proves so, the effort, slight as it may have been, will never be regretted.

[Note.—Parts of this article were written by Mr. Wilson, of Wilson & Silsby, Boston, Mass., for "International Marine Engineering," to whom we are indebted for permission to republish here.]

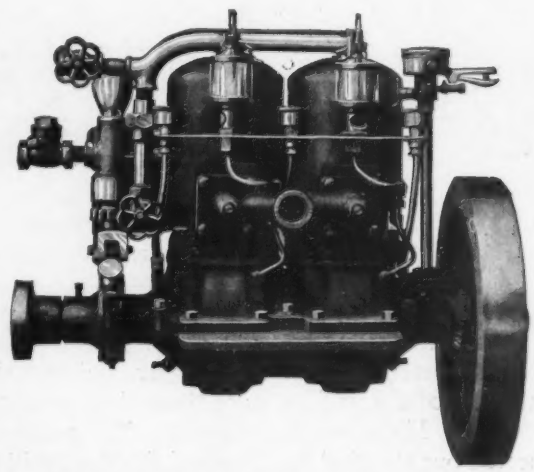
The Water-Cooled Muffler and Exhaust

By K. E. TREADWELL

WHEN the gasolene motor was something new, and the fantail stern launch flourished in all the glory of a prevailing type, the warmest place aboard the power boat was the exhaust piping. We wrapped it up in asbestos and kept a close watch on the outboard fitting, to see that the planking did not char; but, in spite of all precaution, some one was always burning his hands. The first step towards rendering the exhaust system a comfortable shipmate was taken by some genius, who conceived the idea of water-jacketing the exhaust pipe and running the circulating water from the engine through this. The scheme worked, to the extent of materially reducing the temperature of the exhaust system; but the jacketing of piping and muffler added considerable weight to the outfit and naturally increased the cost of engine installation.

The next step in the line of progress was the turning of the circulating water directly into the exhaust piping and letting it flow outboard through the exhaust vent. This plan worked very well when it did work; when it failed to act properly there was trouble a-plenty for the skipper and crew.

With piping of small diameter, the circulating water was apt to clog the passage of the spent gas, thereby producing an amount of back pressure which materially reduced the power of the engine. When the muffler was not drained by a pipe at its lowest point, the water would back up and cause irregular pressure in the exhaust pipe, as the boat rolled and pitched in a seaway. Then, too, if the connection between water and exhaust piping was not lower than the exhaust port, there was always a chance that the cylinder would flood at particularly inopportune moments.



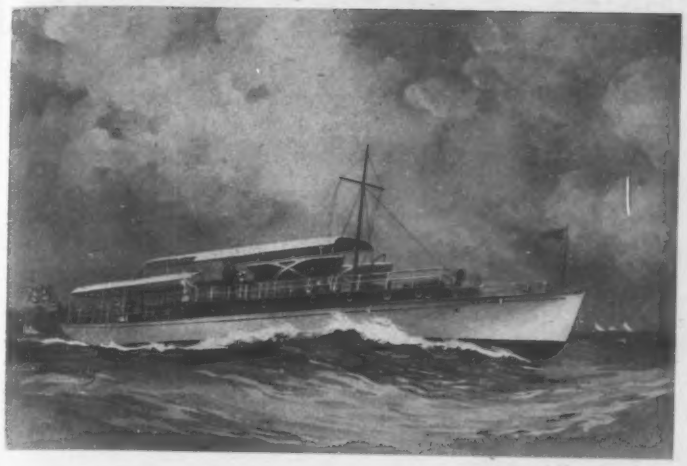
GASOLENE MOTOR, SHOWING A SYSTEM OF BY-PASS AND REGULATING VALVES FOR WATER-COOLED EXHAUST. THE TWO VALVES ARE SHOWN BRANCHING FROM PIPE ON TOP OF CYLINDERS.

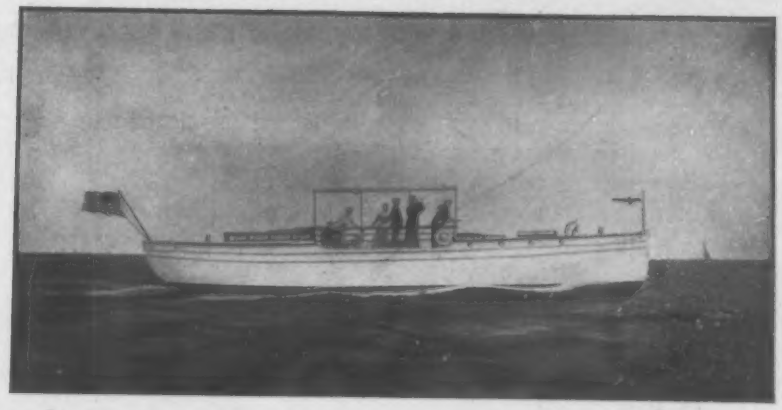
These defects having been eliminated, one by one, the mechanical engineers had an opportunity to discover and remedy a few minor defects, which had gone uncorrected while working out the greater problem. One of these was that the quantity of water required to reduce the exhaust gases to steam varied greatly, according to the temperature of both atmosphere and exhaust piping, and that a water supply which would vaporize nicely on a hot July afternoon would choke the piping when starting up in cold weather.

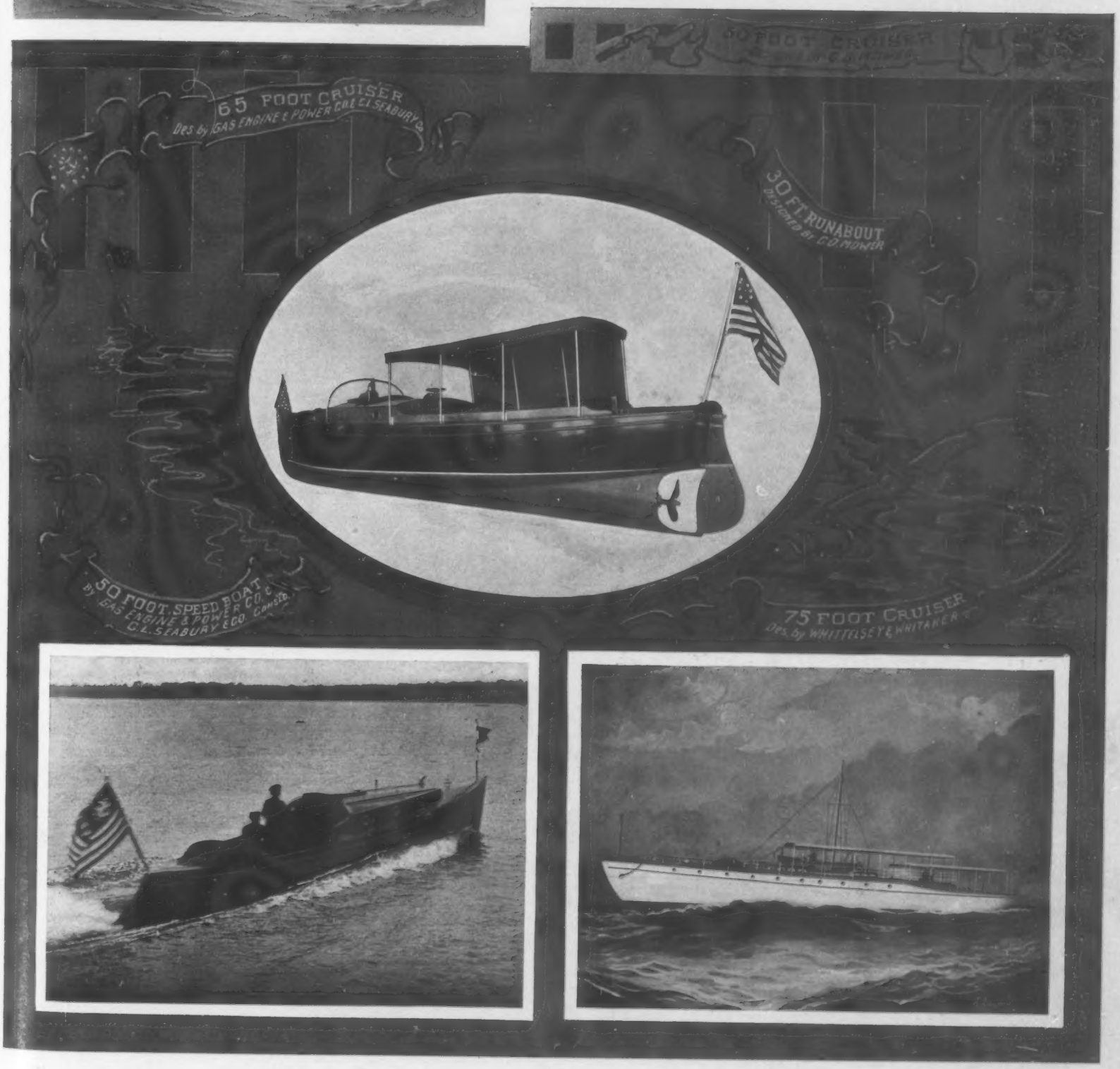
To surmount this obstacle, the overflow pipe, taking the water *from* engine jacket, now ends in a "two-way" connection from which two pipes lead. One of these runs outboard, the other to the exhaust piping or silencer, if one is used. There is a shut-off valve on the pipe leading outboard and one on that connecting with the exhaust system.

By leaving the former open and closing the latter all water goes outboard; by closing former and opening latter, all water passes through exhaust piping, and any desired intermediate quantity of water may be passed through exhaust piping by the regulating of the openings of these two valves.

This system works so well that in many cases it forms an integral part of the engine equipment. In fact, the idea works so satisfactorily that some engines are now built with a similar system for regulating the amount of water supplied to the water jacket of the engine cylinder itself.






65 FOOT CRUISER
Des by GAS ENGINE & POWER Co & C.L. SEABURY &
30 FT RUNABOUT
DESIGNED BY C.D. MOWER
50 FOOT SPEED BOAT
BY GAS ENGINE & POWER CO. & C.L. SEABURY & CO. Consts.
75 FOOT CRUISER
Des. by WHITTELSEY & WHITAKER

SOME NEW POWER BOATS FOR 1909.

New Boat and Engine Types

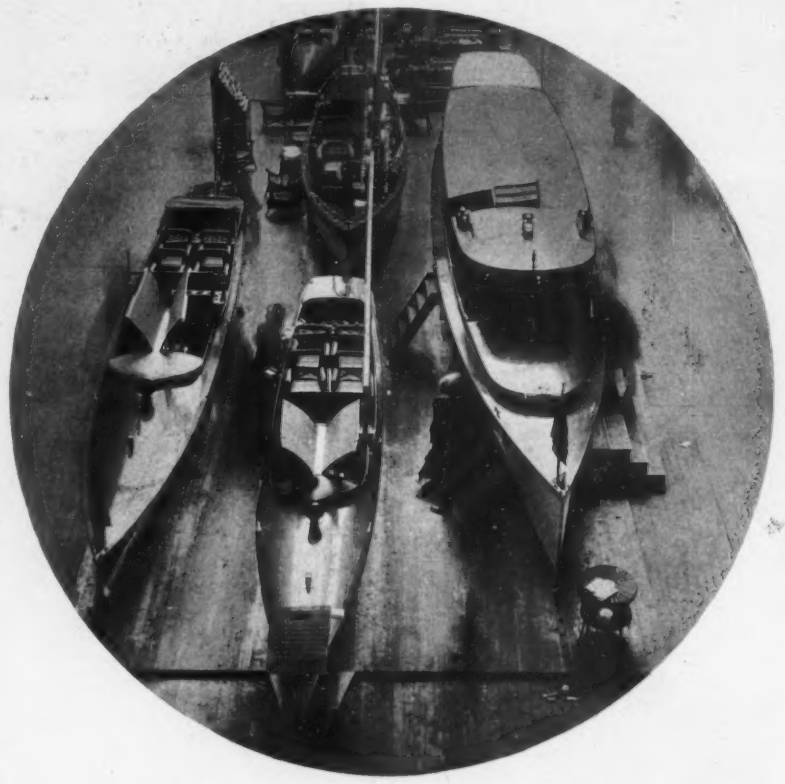
PRESENT TENDENCIES IN CRAFT AND POWER AS INDICATED BY THE NEW YORK SHOW

By E. T. KEYSER

THAT the sport of motor boating is getting down to a practical basis has never been more convincingly shown than by the fact that the exhibits at the New York Motor Boat Show of 1909 showed a sharp division into special classes of craft and engines designed for particular uses. Moreover, the refinement of these various types, in an endeavor to get the greatest possible service out of each, was responsible for a showing of well-selected craft. Freaks were conspicuously absent, with the exception of the Bat, which looked like a combination of hydroplane and aeroplane, and which would certainly have proved an interesting craft to handle in a quartering breeze.

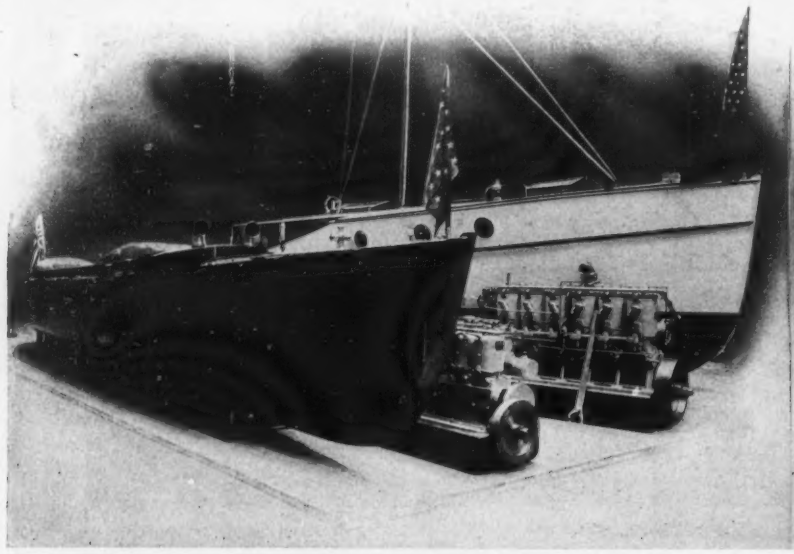
The 45-foot cruiser shown by the Gas Engine & Power Co. and Chas. L. Seabury & Co., Consolidated, is a splendidly-designed example of the combination raised deck and trunk cabin type, which has now become pretty nearly a standard for cruisers of her dimensions. She has a very pronounced flare to her topsides, without in any way spoiling her underbody, by which her designer has procured a dry and, at the same time, a speedy boat. She is so arranged as to provide sleeping accommodations for four passengers, and gives the impression of combined power and seaworthiness, with an arrangement of cabin accommodations that would have been impossible in a craft or her over-all length a few years ago. The fact that she will make a speed of 12 miles an hour shows that the cruising fraternity are beginning to turn their thoughts to rather higher speed than formerly obtained among the larger size out-and-out cruising craft.

For the man who wants to do it all himself, and has no desire to spend 40 per cent. of his holiday hours in brightening up brasswork and rubbing down hardwood trim, the little 28-foot Racine raised deck boat was a revelation. She illustrates the tendency, on the part of those who were formerly content with a short run in an open boat, to spend holidays and week-ends afloat. She is also an indication of the sensible reform which has been going on quietly for the last three or four seasons in the way of the abolition of jim-cracks and fancy work aboard the single-handed boat. A few years ago the owner of a boat of this size would have endeavored to see just how many bits of shining metal he could have distributed around her, and how much fancy work could be crowded into his cabin. She also illustrates the tendency to get as much of the engine as possible under the cockpit floor in the small cruisers.

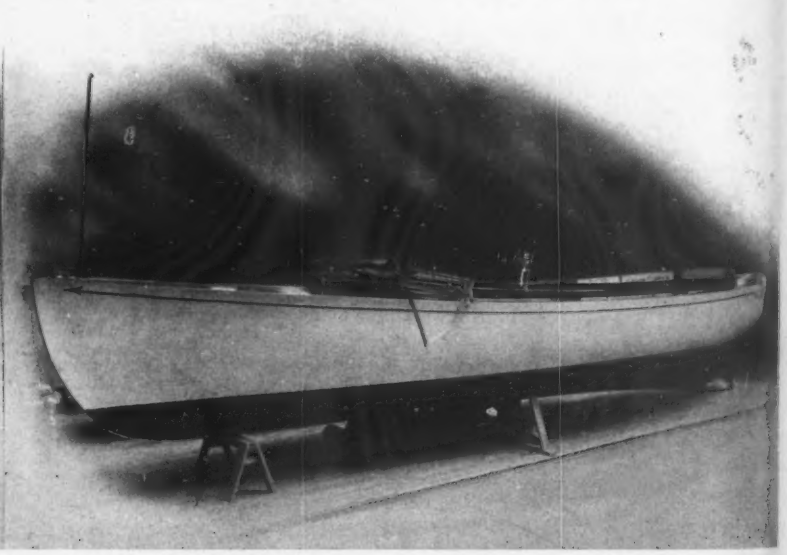


TWO FAST RUNABOUTS AND A LUXURIOUSLY APPOINTED CABIN DAY CRUISER FOR INSIDE WATERS. THESE BOATS CORRESPOND TO THE RUNABOUT AND TOURING CAR OF THE AUTOMOBILE WORLD.

Not so long ago a speed of 12 to 15 miles was considered obtainable only in uncomfortable and wet racers. The Gas Engine & Power Company's 30-foot family runabout and the 35-foot Elco Express, with respective speeds of 12 and 23 miles an hour, exemplify the speed and passenger-carrying abilities of the fast runabout type which is now coming so much into use for day



A 45-FOOT RUNABOUT AND A RAISED-DECK CRUISER OF THE SAME OVER-ALL LENGTH. THE FORMER MAKES 20 AND THE LATTER 12 MILES PER HOUR.



A 25-FOOT GIELOW-DESIGNED RUNABOUT, WHOSE FINE LINES AND COMFORTABLE SEATING ARRANGEMENTS WERE VERY ATTRACTIVE.

trips and for ferry service on comparatively sheltered waters. Clean-lined, with a good freeboard forward and a well-pronounced flare, these boats will stand weather which will do all sorts of things to an out-and-out racing hull; their engines are located forward under the hoods and the ventilation of these compartments is splendidly taken care of.

The increase in size of the open launch is something surprising to those who have not kept in close touch with the situation, for one of the season's productions is a 45-foot runabout, with a 60-horsepower, 6-cylinder Speedway engine, which gives a speed of 20 miles per hour. An open launch, with the same over-all length as a good-sized cabin cruiser, shows the striking development of the open pleasure craft. The number of these that will be built is, of course, necessarily limited, for the great majority of the boating public would hesitate, even could they afford it, to put so much money into an open hull. On the other hand, the moderate-sized runabout, with a speed of from 10 to 12 miles an hour, will be greatly in evidence during the coming year. In most of these boats the engine, which only a few years ago was just as far astern as it could possibly be jammed, is placed in the forward end of the cockpit, sheltered by a hood, and separated from the seating space by a bulkhead of substantial construction. 'Thwartship seats with lazy-backs and the cockpit left open for chairs will be the general arrangement of the hulls, while engines ranging from 8 to 25 horsepower are in the lower-priced craft, generally of the two-cycle type, and in the more expensive boats of the four-cycle variety.

VIEW OF FORWARD BULKHEAD OF A FAST RUNABOUT. THE STEERING GEAR, CONTROL SYSTEM AND INDICATOR ARE FOCUSSED AT THE FORWARD END OF THE COCKPIT.

The dory will be uncommonly popular during the season of 1909. In all sizes from 16 to 25 feet they undoubtedly give more for their money in seaworthiness, size and carrying capacity than almost any other open type. While in no wise can they be considered a speed craft, they give 8 to 8½ miles per hour at a very moderate expenditure of engine power. Almost every boatbuilder, even those located on the fresh waters of the West, are to-day building this type of launch, once considered an exclusively salt-water model. Another illustration of the steady way in which the boat-owner is going in for practical equipment and cutting out frills and furbelows is seen in the fact that the only bright woodwork on the best finished dories is in the decks. The old-fashioned awning is now almost a thing of the past. In its place the automobile hood, easily converted into a canvas cabin, or just as easily dropped and stowed on the after deck, or a spray hood not quite so ornamental, but just as effective and much more economical, has grown in public favor. Certainly these two types of shelter are along the lines of progress, for the old awning, no matter in which form or shape it was constructed, was sometimes impossible to strike quickly, was always a nuisance to stow, and in a squall a positive danger, particularly when used aboard a small boat. Recent legislation, making the carrying of sailing lights obligatory, has stirred up the manufacturers to the extent of putting on the market numerous improvements over the old-fashioned greasy and smelly kerosene lights. Storage and generating systems of acetylene plants, as well as electrical equipments, will, in many cases, supersede the older styles of illumination. Electric lighting systems have been much simplified and reduced in cost. As with the lighting proposition, the same government agitation has rather forced improvements in audible signaling devices. The hand-pump whistles that squeaked and squawked are giving place to a strong, long note with a force of electric current or compressed air or gas behind it, and the enforced knowledge of the meaning of the signals will make things easier for the navigators of our waters, many of whom have often been puzzled as to just what the other fellow was going to do within the next few minutes.

BOW VIEW OF 45-FOOT RAISED-DECK CRUISER. THE ILLUSTRATION GIVES A GOOD IDEA OF HER COMPARATIVE FREEBOARD AND DRAFT.

Among the engines that will be used the coming season will be found very few radical changes. Simplification of design, strengthening of parts and greater accessibility seem to be the lines along which the engine manufacturers have been working. In the larger four-cycle motors air and magnetic starting devices will relieve the engineer of the rather unpleasant job of turning over. As a general thing, the engine is getting to be as thoroughly specialized as the hull, and we now realize that the heavy slow-speed, the medium-weight moderate-speed, and the light-weight high-revolution engine all have their places, and each type is peculiarly suited for its own particular type of hull. The cruising man is getting more and more away from the light-weight engine of high revolutions. The man with the moderate-speed runabout or family launch now understands why the engine that does so well in the light-weight racing craft is not for him.

The multi-cylinder idea is now in full force. Engines as low as 5 horsepower are now popular in two-cylinder types. The make-and-break seems to be gaining somewhat in popularity.

The small, light, high-speed, 2-cycle motor, running from one to four cylinders and producing between 2½ and 3 horsepower per cylinder unit, will be much in vogue during the coming season for installation in canoes, row-boats and the light speed boats.

The Failure of Independence

AN INCIDENT IN AMERICA'S CUP RACING HISTORY THAT STIRRED THE NEW YORK YACHT CLUB TO THE DEPTHS AND CAUSED UNUSUAL FEELING THROUGHOUT THE COUNTRY

By LAWRENCE PERRY

IN yachting, as in most other things, certain phases of past events linger in the mind long after many of the more important elements connected therewith have faded from the memory. * * * * The spotless sails of the 90-foot sloop Independence loom against a windy sky. The salty waves are crested with white, and the gray cliffs of Newport have fallen under the horizon. There has been mad racing out here on the lonely Atlantic. The great drab single-sticker from Boston has striven mightily on a long windward leg, but she has not prevailed. The old problem of center of topsail effort as against lateral resistance is being worked out afresh. Down to leeward she has gone, crab-like, while the two Haffs and a crew of as able men as ever walked a yacht's deck have jammed her again, again and again on her course.

Now, beaten by the two white flyers, Columbia and Constitution, she has eased her sheets, and, with wind just abaft the mast, is reaching as never boat reached before. She is not sailing; she is soaring, flying. She seems to take up the whole ocean in her flight. Daring indeed the mariner who would take his steam-driven craft within a mile of that overwrought windjammer!

At the wheel crouches the tall, gaunt form of "Hank" Haff, the skipper, his white whiskers beaten against his chest, his arms benumbed with physical exertion; but gallant, unyielding, indomitable as the Viking stock whence he sprang. Clayton, his son, leans far out, with one hand grasping the shrouds, with the other motioning directions to a young seaman from the Scituate coast, working his way out on the quivering gaff to recover the end of a parted stay. * * * *

Now the twilight comes. A dark sloop glides around Fort Adams with 14 feet of water sloshing about inside her fin and flat-bilged hold. A sinewy old man and a lusty young mate step into a gig and row, not to the New York Yacht Club landing—no, indeed!—but to Champion's wharf. And that was all. That was the end of the Independence. She was long ago broken up for junk, and "Hank" Haff sleeps the long sleep; and "Clay" is raising squabs or something down on Long Island. The past is dead.

No boat was ever sent out to breast the salt seas under more absorbing circumstances, under more tumultuous conditions. No boat—if we except, perhaps, contestants in America's Cup races—ever filled the public eye of the nation so completely. On June 3, 1901, she hoisted sails for the first time; on September 3 she lowered them off Boston Light for the last time. Three months! The number of her days was out of all proportion to the constant furore which marked them. May it be said they were also replete with lessons of many sorts? No doubt.

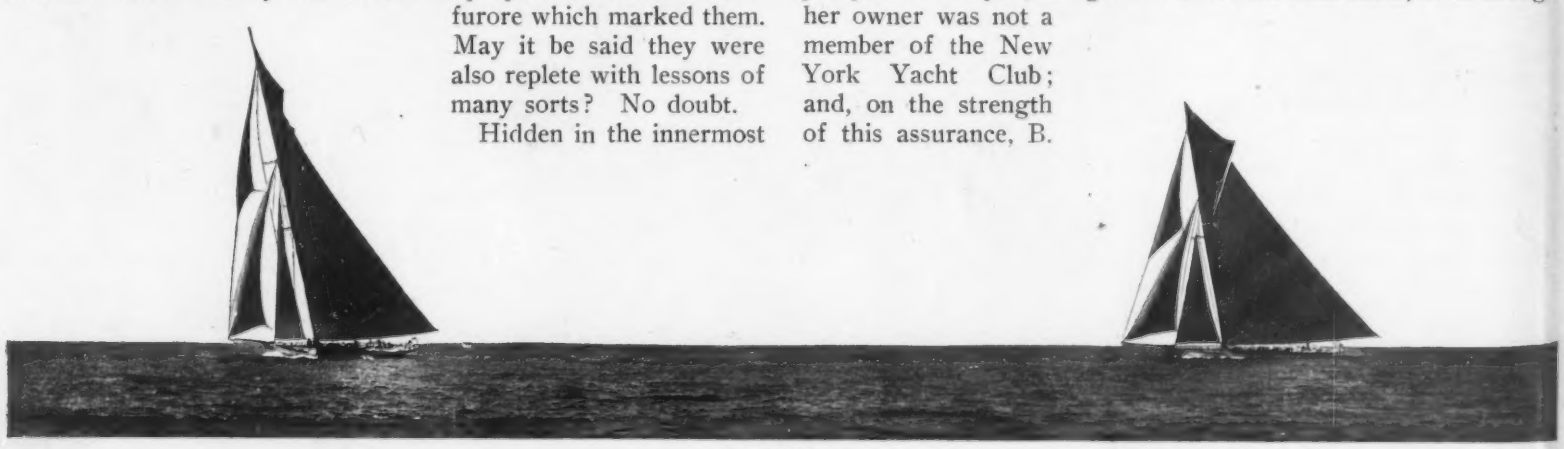
Hidden in the innermost recesses of the Herreshoff "think-room" at Bristol you might find interesting data in this regard. Mark the word "might." No one can be sure, of course. Anyway, study the plans of Independence sometime and then go up to City Island and take a good, long look at Reliance. The comparison may not be sufficiently striking to knock you down; there is no saying. However, if Independence afforded any suggestion, inspiration, idea, to the creators of Reliance, the Boston boat, whatever sins of commission or omission she embodied, may be held not to have lived in vain.

Whatever, too, may have been the primal motives for her production—and these were strenuously debated—be it said that she and the gallant band of gentlemen who had her in charge strove in the interests of Boston's yachting honor in manner consonant with the highest traditions of that port; no Massachusetts Bay shellback ever asked more than that.

It was after Sir Thomas Lipton's second challenge for America's Cup had been received and accepted and a syndicate of wealthy New York Yacht Club members had been formed to build Constitution that the idea of a Boston candidate for the honor of meeting Shamrock II was formulated in the minds of a committee of Boston yachtsmen. These men believed that a 90-foot cup racer could be built and prepared for the supreme test at a cost considerably under the four or five hundred thousand dollars involved in the building and upkeep of Columbia, which had successfully defended the cup against the first Shamrock.

It might be remarked parenthetically that if Independence proved anything, she demonstrated that the more money you spend upon a cup racing sloop the more satisfactory your returns will be in many ways. At all events, the primary idea was to raise $100,000. It cannot be said that Bostonians fell over themselves to subscribe for this sum, and ultimately it became apparent that, if the big sloop ever was to be built, it must be through the generosity and public spirit of an individual. He was found in Thomas W. Lawson, who took upon himself the entire project, stipulating that the boat participate in the trial races to be held between Constitution and Columbia, and that she be in charge of a committee of leading Massachusetts yachtsmen. The stipulation was that if Independence, as a result of the trial races, demonstrate her superiority, she be permitted to meet Shamrock II in defense of the cup.

Gen. Charles J. Paine, a prominent figure in cup defense, and a member of the New York Yacht Club committee which had drafted the new deed of gift, gave it as his opinion that the prospective sloop was eligible to enter the trial races, even though her owner was not a member of the New York Yacht Club; and, on the strength of this assurance, B.



B. Crowninshield, of Boston, was selected as designer, and George Lawley & Son as builders of the new sloop. Work upon her began forthwith.

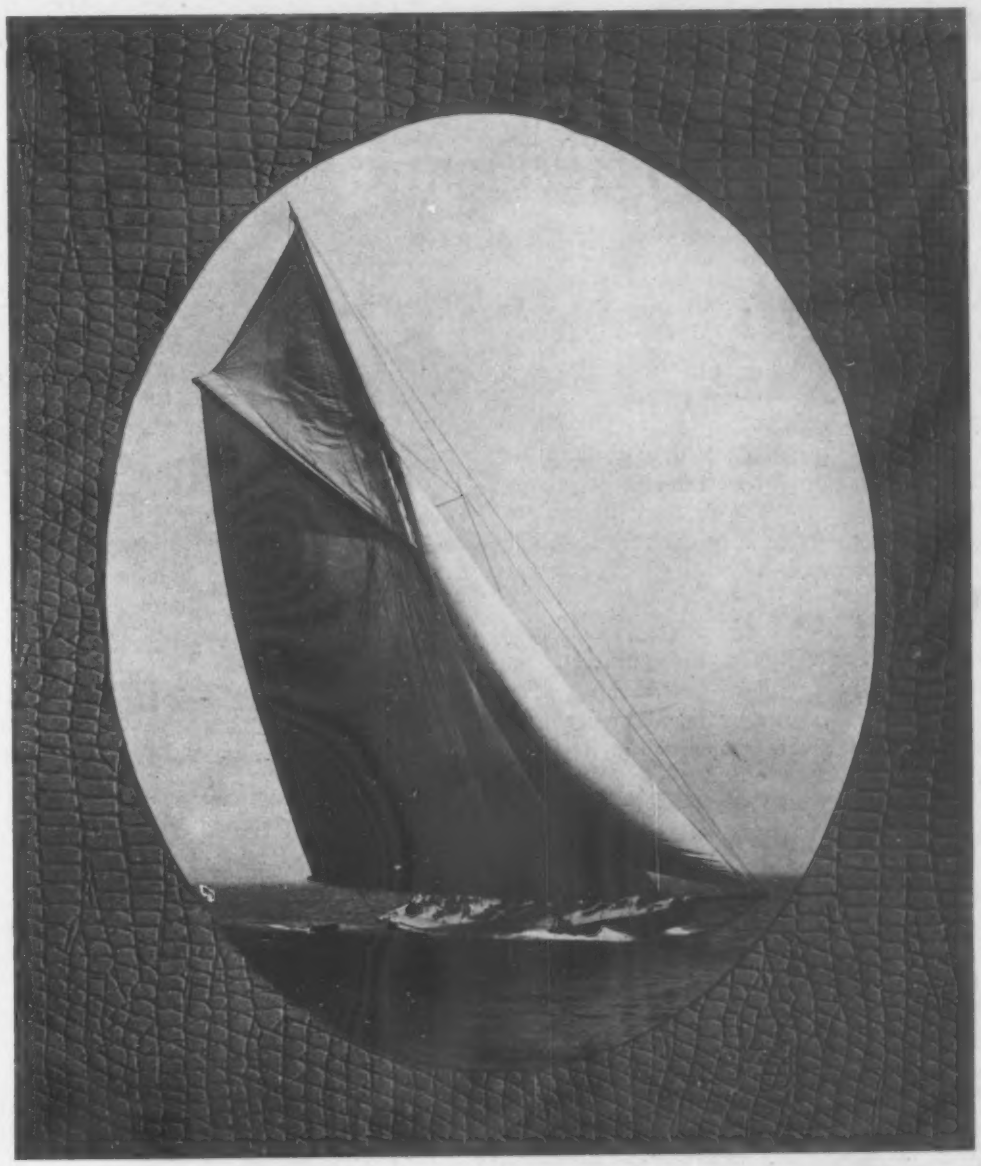
Before Mr. Lawson was through with her she had cost him exactly $205,034.05, which, when you consider it, is quite a sum to spend for three months' sport. But still it was good sport, highly exciting, and in some ways satisfactory; there can be no manner of doubt as to that. Take the New York Yacht Club, for instance; no more successful baiting of that organization was ever promulgated, and never will be, unless Mr. Lawson builds another yacht some day, rumors of which arise from time to time to throw consternation into West Forty-fourth street

A complete record of the attempt to gain for Independence the privilege of a place in the trial races to select a defender for the America's Cup would fill pages. Suffice to say that for weeks and weeks the press of two nations teemed with letters, backbitings, opinions, veiled insults, and occasionally open ones, circulating almost daily between New York and Boston. The New York Yacht Club, briefly, was quite willing to admit Independence into the sacred circle, provided her owner would transfer her temporarily to some member of the club. This her owner refused to do, and it may not be recorded that he saved either time, printer's ink or purple vocabulary in giving his refusal the widest circulation.

Had it not been for the newly-formed Newport Yacht Racing Association, it is more than probable that Independence would have gone to her grave without ever having sailed against a rival 90-foot sloop. As it was, Ralph N. Ellis, who was then secretary of this organization—most of the members of which, be it said, were also members of the New York Yacht Club—extended an invitation to the owners of the Boston sloop to meet Columbia and Constitution in a series of races for 90-footers, to be sailed in July and in August.

This invitation was, of course, accepted, and the country waited as patiently as it could for the sensational meetings off Brenton's Reef. In June Independence was being tried out in Massachusetts Bay. As trial-horses, she had the big Weld schooner Hildegarde and William Gay's 70-foot sloop Athene, neither of which, naturally, was in Independence's class. There had been some talk of buying Defender for this purpose, but examination of her hull revealed the fact that corrosion of metals had already rendered her unfit for the water.

She had the two Haffs aboard, with a crew of American sailors, and, in addition, was managed by such gifted Corinthians as Charles Francis Adams II, than whom no more skillful skipper lives, and by John Bryant, C. H. W. Foster, Edward Horton, *et als*. Defects began to show themselves early. Her fin, for one thing, was too far aft, which threw her out of balance, and her interior structural work was too light to support the overhangs. But there was compensation for these failings, in that her scow model, with the wind abeam, gave her speed that was nothing less than wonderful, and led to hopes that she might, after all, demonstrate that the principles embodied in her design and construction were correct.



THOUGH A "GHOST" AT REACHING, INDEPENDENCE WAS A FAILURE ON THE WIND.

With the day of the trial races drawing near, Independence made the fatal trip to the westward around Cape Cod. She went around in tow on a day which might have deterred the skipper of even a Rockport stone sloop from venturing out. The seas pounded her until the men aboard stood by the launches, ready at any moment to put them over side and desert a sinking ship. Her deck was pounded up, her plates sprung, and, in general, she was far from a boat calculated to triumph over Columbia and Constitution when she passed Race Rock and made up the Thames at New London under her own sails.

Capt. Haff reported that the vessel could not possibly be repaired in time to meet her two rivals off Newport on July 6, the date then being June 30. Her owner, however, gave orders to push the work of restoration night and day, and to bring the boat to the line if she sank the next minute. So to the line she came on July 6, her fin filled with water, and her plates working like a water-logged peach crate. There was a light air that day, and, while Columbia and Constitution walked away after the starting gun sounded like ghosts, the much-heralded Boston sloop crossed like an ice wagon with no rear wheels and drawn by decrepit mules.

(Continued on page 322.)

Copyright, 1909. GETTING READY FOR MONACO. STANDARD, MR. PRICE M'KINNEY'S NEW BOAT, ON HER FIRST TRIP ON THE HUDSON.

The Outlook for Dixie II and Standard at Monaco

Photographs by Edwin Levick

SNUGLY stowed on the forward deck of the steamer Germania when she sailed for Marseilles on March 6 were the Dixie II and Standard, and with them went the hopes and well-wishes of every American motor-boat enthusiast.

Whether we still have the right to designate Dixie by the suffix 2nd, now that she is in a new hull, is a matter of debate, depending on whether we consider in power craft that the engine makes the boat or still cling to the time-honored theory that the hull is the vital thing, and endow it with a personality entirely its own. Be that as it may, the numeral seems to cling to her, and, to save confusion, we shall still use it.

It is something of a departure for American boats to be starting for the Monaco races, for these are the first to be built in this country that have taken part in this premier speed event. But from the known performance of one of the boats, all Americans feel confident of a fair measure of success; and while it is regretted that the other contestant could not have had a satisfactory try-out before going to the Mediterranean, the knowledge that there has gone into her the experience gained through Dixie II, plus that gained by the makers of the engine in former boats of high speed, leads us to believe that she will acquit herself satisfactorily.

As to size, Standard—Mr. Price McKinney's boat — is much the larger of the two, being 49 feet long, as against 39 feet and a fraction for Dixie, and having 500 horsepower, where the older boat has about 250. But as Dixie's displacement is only about 5,000 pounds to Standard's 14,000, it will be seen that the former has the advantage in the ratio of horsepower to displacement. The same careful designing has gone into Standard's hull, and it is estimated that she should show about the same speed that Dixie attained—some 37 miles per hour. But Dixie is not the same Dixie that raced last year. Her new hull is an improvement on the old one, and, in a series of tests made with models in the government's experimental tank at Washington, showed an increased speed of about ¾ of a mile per hour. If she does as well at Monaco as when she showed her top speed (if it was the top) last summer, plus the extra ¾ of a mile, she will be extremely hard to beat. This speed has not yet been equalled at a Monaco meet.

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STANDARD'S SIX-CYLINDER ENGINE. THE CYLINDERS ARE BEING CHARGED WITH COMPRESSED AIR FROM A SMALLER MOTOR ON THE LIGHTER.

As to any marked difference in characteristics between the American and the foreign-designed boats, it may be said that nearly all of the latter have two engines and twin screws, whereas both of our craft have single engines. This may be accounted for by reason of the difficulty foreign builders have had in making boats that could keep on their feet with one engine, the same thought and care not having been put into their hull as has been the case in this country. Their efforts have been chiefly confined heretofore to the engines, and one has only to look at the craft that have raced at Monaco to see how little attention has been bestowed on the design of the hull. Anything has been considered good enough if the engines were all right. Wolseley-Siddeley was an exception, but even she did not go through the water as cleanly as Dixie II. This has been due to the fact that the sport, as conducted abroad, has been largely in the hands of the automobile manufacturers, who have been intent on the development of the motor and have not yet become alive to the possibilities of the properly designed hull. In this respect they might read a lesson from the outcome of last season's racing in this country.

The chief point of difference between the status of our contestants and the foreign entries at Monaco lies in the fact that the American boats are privately owned and are raced for the sake of the sport, while most of the foreign craft are owned and raced by the manufacturers of the engines. We have only to look at the names of the various entries to realize this—Panhard, Fiat, Daimler, and the like, showing the respective concerns that own them.

In the case of Standard, Mr. Price McKinney, her owner, has kept the name of a former boat he owned that he bought from the Standard Company. The hull was designed by Mr. Clinton H. Crane, of Tams, Lemoine & Crane, and the engine is a six-cylinder, 500 horsepower Standard. Dixie, Mr. E. J. Schroeder's boat, is too well known to need a description here. She was also designed by Mr. Crane, and her engine was designed and built by Crane & Whitman. It has developed about 250 horsepower.

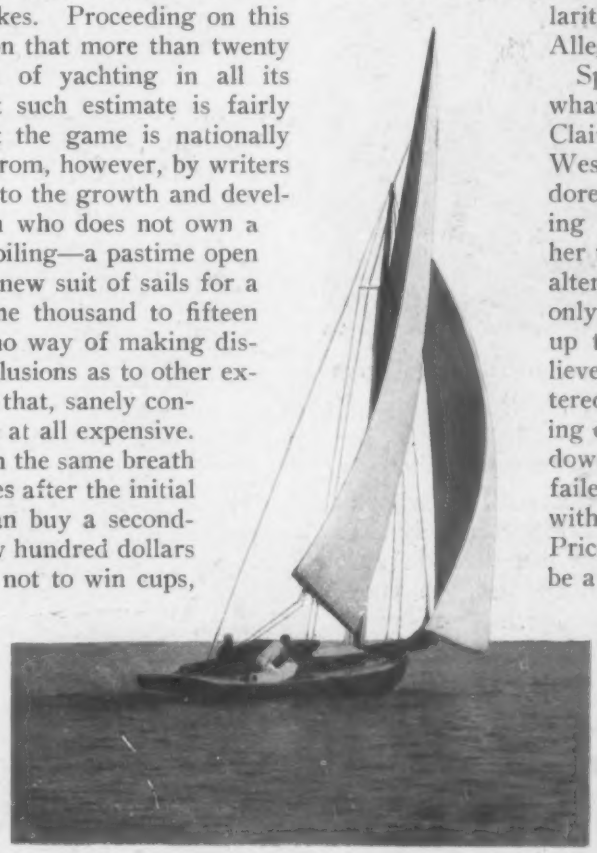
The boats are entered in the following events: The Prize of Monte Carlo, 10,000 francs, distance 50 kilometers (31 miles); the International Grand Prize of 15,000 francs, distance 100 kilometers (62.1 miles); the Mile and Kilometer, with both flying and standing start, first prize, 3,000 francs and a cup, given by the Prince of Monaco, valued at 10,000 francs.

The American boats will both be well handled, Captain Barclay Pierce, of Dixie, having but few equals at handling speed boats. With him will be Albert Rappuhn, the engineer who was with him last year. Captain Charles Pederson will be in command of Standard. For an initial effort America will be well represented.

The Month in Yachting

ABOUT this season of the year certain men, who feel that they must show their originality as scribblers upon yachting topics, sit down before their typewriters, with their last year's ebullition upon the same subject conveniently at their elbows, and pound out an article upon "The Expense of Yachting." Large figures alone satisfy. A practice is made, for instance, of considering the steam yachts gathered at Newport on the most recent New York Yacht Club cruise, and estimating their total value. Then there is the pleasing habit of taking a yacht like the Corsair and calculating how much it costs to operate and maintain her throughout the season. I won't say how nearly the exact facts are approximated, because there is no way of knowing; and I can affirm from experience that writers of such articles, even if they have investigated faithfully, are equally ignorant. You can, of course, learn about how much it costs to build a yacht; how much coal she burns; the amount of money her crew receive, and the like; but when you have these facts you have not sounded the depths of financial outlay involved. The only thing to do is to add from five to fifteen thousand dollars to the estimate and let it go at that, which is not conducive to accuracy, however interesting reading it makes. Proceeding on this basis, it is easy to come to the conclusion that more than twenty million dollars are involved in the sport of yachting in all its ramifications. Well, even suppose that such estimate is fairly accurate, what does it signify but that the game is nationally popular? The conclusions drawn therefrom, however, by writers on the subject are distinctly detrimental to the growth and development of the sport. The average man who does not own a boat views yachting as he views automobiling—a pastime open only to men of wealth. Reading that a new suit of sails for a boat of 40 feet waterline costs from one thousand to fifteen hundred dollars, or even more, he has no way of making distinctions, and naturally he bases his conclusions as to other expenditures proportionally. The truth is that, sanely conducted, the sport of yachting need not be at all expensive. In this regard it is not to be mentioned in the same breath with automobiling or many other pastimes after the initial outlay of purchasing the boat. You can buy a second-hand boat for almost any sum from a few hundred dollars up, and if you sail merely for pleasure, not to win cups, you can go through a season on an expense of a few dollars. And, as a matter of fact, if you are intent upon racing and enjoy the thrill of seeing a cup loom at the end of a well-sailed course, you can buy a "bug," or any one of a dozen other types of small size and moderate price, and have all the sport that other men pay thousands of dollars for. If those who write upon the expensiveness of yachting, treating it as a sport for kings or captains of finance, would turn their attention to demonstrating just how easy it is for any man, whatever his means, to enter the game, they would earn an enviable reputation for originality and do a great deal of good.

That Chicago yachtsman, whoever he was, who arose to the emergency created by the mix-up over the Canada's Cup by offering a $10,000 cup for international competition in the 27-foot class, has the correct idea. The terms under which such a prize was to be presented involved its joint ownership by the Illinois and Royal Canadian Yacht Clubs until won by a 27-footer, when it would become the property of the owner. Æmelius Jarvis, of the Canadian Club, is reported to have said that he received the offer and placed it before the members of the club, who decided that it was too late in the season to warrant the proper designing, building and trying-out of a sloop in time for a race in 1909. Here's to hoping that the offer will be extended so as to cover 1910! I suppose all Western yachtsmen know what such a trophy would mean. Being the most valuable ever offered, it would, for one thing, bring Western yachting prominently in the eyes of the whole country, and would place the sport upon a basis of popularity which it has never attained west of the Alleghanies.



SPRAY, THE FORMER CHAMPION 21-FOOTER OF THE GREAT LAKES. SHE IS BEING ENTIRELY REBUILT THIS YEAR AND GREAT THINGS ARE EXPECTED OF HER.

Speaking of Chicago, I hear great things of what Spray, the former champion of Lake St. Clair, and one of the smartest sloops of the West, is going to do next season. Commodore Fred Price, her present owner, is having her entirely rebuilt. While he wanted her timbers renewed, he did not want the lines altered. When this sloop, the champion not only of Lake St. Clair but of Lake Erie, came up to Lake Michigan in 1908, everyone believed that the races in which she was to be entered were as good as won for her enterprising owner. But this proved not so. She fell down in the Put-in-Bay regatta, and also failed to win the Lipton Cup. This season, with her structural renovation, Commodore Price expects better things of her, and she will be a factor in all the summer's regattas.

While talking of next season on the Great Lakes, it is timely to remind yachtsmen of the Middle West that the tars of Cleveland are preparing for a strenuous season. They have good sailors and good boats at this port, and always figure well in interlake contests. So far as that goes, consider last season's results. Cleveland, the 21-footer, won the Great Lakes championship last year at Put-in-Bay; Red Devil won the speed boat

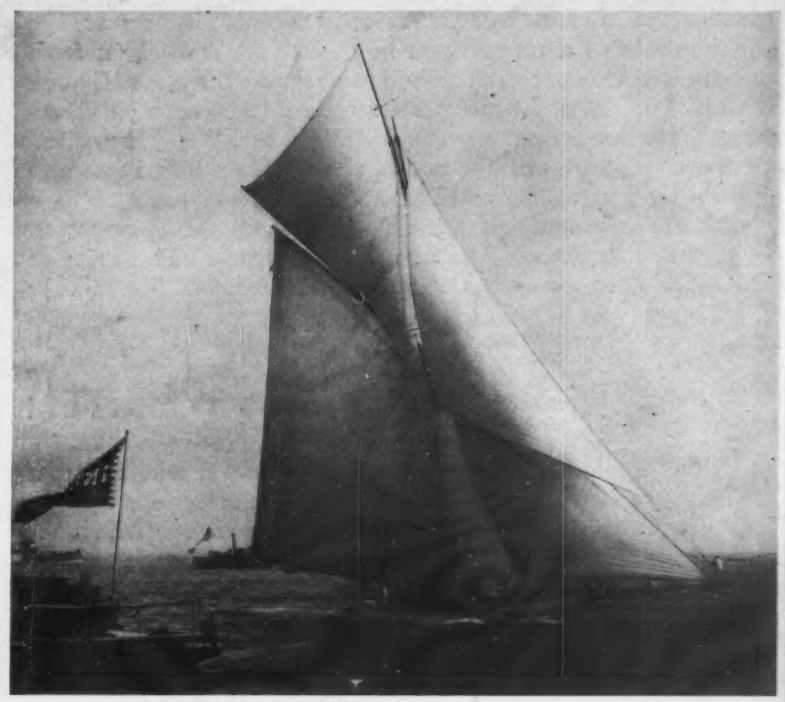
championship, and Hayseed captured a national championship at Marblehead. There is nothing unsatisfactory about such a record.

By the bye, I received a letter recently apropos of my comments upon the charges which Cleveland yachtsmen made of unfairness to their sloop Cleveland by the judges of the Lipton Cup race. This man, a well-known Cleveland yachting writer, the author of the charges, said that nothing has been heard in the way of reply from Chicago, and that he still stands firmly upon his original indictment. I had really hoped that the Chicago people would make answer to the grave charges; for certainly there are always two sides to a controversy, however weak one or the other may be.

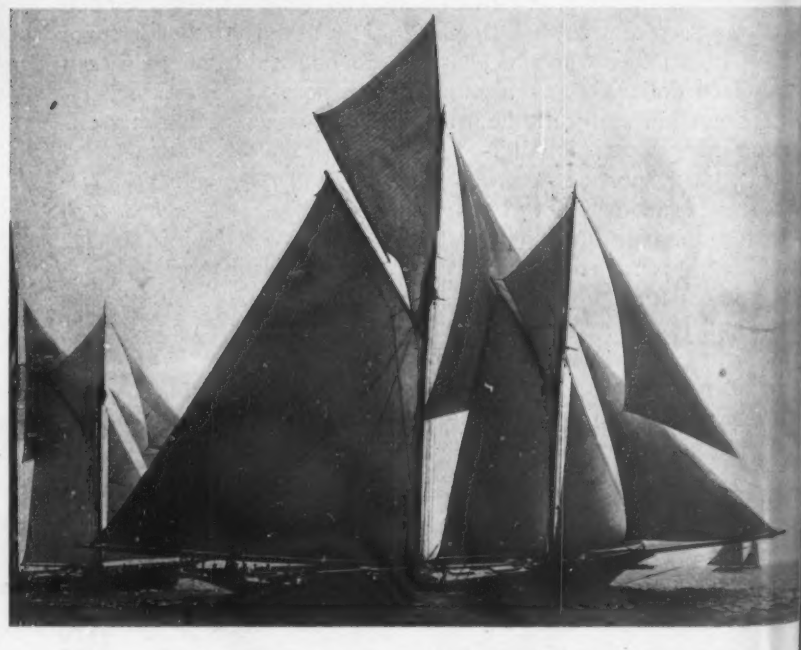
It is persistently reported that Commodore Morss is "out of yachting." That is too bad. He will be missed around Marblehead this year, and I know of no one who will quite take his place. He has sold his famous schooner yacht Dervish, winner of almost every ocean race in which she entered. Before selling her, I understand, he had made up his mind not to enter the Bermuda race this year. He is a very busy man, and felt that, having twice made the trip to the Islands, he preferred the variety of cruising in new waters during the vacations he occasionally took.

PURITAN, THE CUP DEFENDER OF 1885. AS A SCHOONER SHE IS NOW CARRYING FREIGHT AND PASSENGERS BETWEEN THE CAPE VERDE ISLAND AND PROVIDENCE.

A Narragansett Bay yachtsman writes me that the old America's Cup defender Puritan, which defeated the English cutter Genesta in 1885, is making a good record as a packet between the Rhode Island capital and the Cape Verde Islands. She is being operated as a packet, carrying both cargo and passengers, under schooner rig. It is strange how these famous old craft reappear in the public eye from time to time, following vocations far removed from that for which they were built. There is the Volunteer, until recently owned by that grand old man of cup defense, Gen. Paine, and recently purchased by Charles Barr. Captain Barr will sail her himself and be under charter this summer, I understand. It will be remembered that Charlie's brother, John Barr, sailed the English Thistle when she was defeated for the America's Cup by Volunteer. There is Pilgrim, one of the contestants for the honor of defending the Cup in the trial races of 1893; she is now fitted with an auxiliary engine and cruises placidly in quiet waters. The beautiful sloop Colonia, which also participated in these trial races of 1893, is now the schooner Corona. The loss of Mayflower while on a treasure-hunting expedition to the West Indies is still fresh in mind. Defender was long ago converted into junk. Columbia and Reliance rest high and dry on the stocks at City Island, but Constitution has come under the hammer of the junkmen. The famous old America, the greatest craft of all—the symbol of all that American yachting stands for and aims, or should aim, to be—is still afloat, the property of Butler Ames, of Lowell, Mass., who uses her for cruising along the New England coast.



VOLUNTEER, AS SHE APPEARED IN THE RACE OF SEPT. 27, 1887, WHEN SHE DEFEATED THISTLE. CAPT. "CHARLIE" BARR HAS RECENTLY PURCHASED THE FAMOUS SLOOP.



VOLUNTEER AS SHE APPEARED UNDER SCHOONER RIG.

The Match Between Meta and Vision

A MEETING BETWEEN FAMOUS BOATS WHICH HAD A MARKED EFFECT ON YACHT DESIGNING—THE LONG OVERHANGS OF TO-DAY WERE SEEN IN VISION A GENERATION AGO

By A. CARY SMITH

A RECENT article in a New York newspaper about the sloop yacht Vision struck a note of memory that may be of interest to all old yachtsmen.

Vision, as related by the article in question, was built from a model made by the late Robert Fish, a man of great practical talent and force, who could not only build boats, but could sail them as well. The Vision was a forerunner of the modern boat, and the common impression that the long overhang is something new is due to lack of knowledge of what has been done in the past.

Vision was a wide boat, with a hollow floor and a long overhang at the bow and a still longer one at the stern. She was described by a writer of the day, yclept "Devoted Yachtsman"—who kept his identity to himself with great success and had a repertoire of language that was the envy of the book-taught Bilkins—as "a cross between a mud turtle and a fantail pigeon."

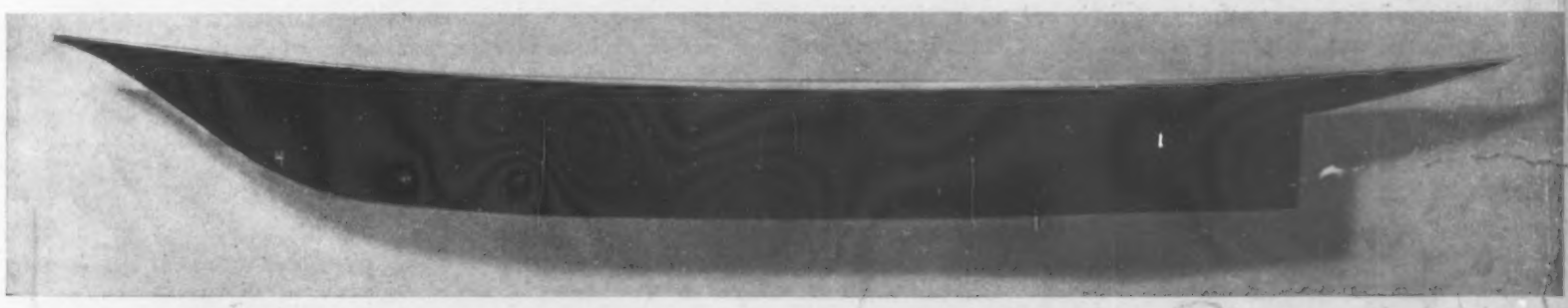
Robert Fish, years before, had built a sailboat 14 feet on the waterline and 22 feet on deck, and had also made a model, from which a coasting schooner was built, with an overhang aft 30 feet long, in which the cabin house was abaft the wheel. Fish suffered obloquy, as all men do who have ideas that come to them before others get them. Such men are visionary fools when alive and far-sighted originators when a long time dead. When American yachts had been defeated and discredited abroad, "Bob" took charge of Sappho and made experiments with her that were laughed at not only by the English, but by his own people. One of these experiments was described in the "Field" at the time in these words: "He soused the main boom amidships, and then expected her to go." But he did make her go, and beat all comers, and was received, when he came home, like a victor.

But to my story. Vision was a wonder to windward and down the wind in smooth water. Some of her supporters, who were not acquainted with lumpy water, made a match with the sloop Meta, to be sailed from a point near Sandy Hook, 15 miles to windward and back. Meta was a sloop yacht built from a model by the late P. McGiehan. She was very different from Vision, being quite sharp on the floor for that day, with a long bow, like a sand-bagger. At the time of the match she was under the charge of Capt. Joe Elsworth, and was manned by a crew of men in his employ.

The day of the race was a bad one. The sky was a dark purple toward the southwest, and it was very thick at the horizon. The boats were at anchor in the Horseshoe, and as we went down in the judges' boat the outlook grew worse—so much so that one of the main supporters of Meta inquired of the writer if he was going on Vindex, and was answered in the affirmative. The Meta man had his dunnage under his arm; but, in the confusion and haste of embarking, his discretion got the better of his valor. Shakespeare, that master of the human emotions, portrays the feeling—"I, too, would have been a warrior had it not been for those vile guns!"

Well, we boarded Vindex. Her genial owner, the late Robert Center, was in great glee. Was not this the day he had waited for so long to show what the old "pot" could do? For was not the "pot," or tank, as she was variously known, the laughing stock of all the "perfesh"? Was she not built of iron and ballasted with lead? Did she not have a long topmast that could be housed? Did she not have "runners" to keep the jib stay taut? Was she not rigged with fore staysail and jib? All these things were anathema, and were the cause of much picturesque profanity and allusions that were more forcible than polite.

We housed the topmast, tied a reef in the mainsail, set the second jib, and started. Meta was outside the Hook, reefed and ready, while Vision was on her way to the Hook, and as we neared her the sea began to get worried and tossed up heaps that greatly impeded her progress. She was apologetically polite, and



VISION, DESIGNED BY THE LATE ROBERT FISH. ON ACCOUNT OF THE LONG OVERHANGS MR. FISH SUFFERED OBLOQUY, AS DO MANY WHO HAVE IDEAS IN ADVANCE OF THE TIMES.

like Sir Pertinax MacSycophant in the play, "kept booing and booing."

As we ranged up, with the water flashing up about 6 feet above the deck and coming down on the house like a load of coal, we saw what ailed the poor boat. She was under two-reefed mainsail and bobbed jib, the latter being hauled down. She would rear up, with the water dripping from the gear forward, showing her keel nearly to the centerboard, and plunge down in a smother of foam, with her rudder and part of the keel showing. The helm was nearly hard-down. It was a picture that would teach more naval architecture in five minutes than could be learned any other way in a year. It was like a description by Kipling: "One day with Fuzzy Wuzzy on the rush would last an 'ealthy Tommy for a year." As we waded past her to windward, she slacked her peak, and, after grievous gyrations, common to shoal boats, paid off and went inside the Hook. Thus one day in rough water ruined the name of a really good, smooth-water boat, and all her victories were forgotten.

When we got to the mark Meta was off, and we followed her down the beach. The wind was dead on end and the sea was nasty. As we neared Shark River there came a squall, with hail that blotted out everything. It grew very dark, and the sails were taken in quickly, only the staysail being left.

The first outfly was terrific—a ridge of foam came like a fast train, and the wind fairly roared. The forestaysail was hauled down, and for awhile nothing could be seen, the sea being perfectly white. The trysail was gotten out and made ready to send up, and, after the first burst, was set, together with the staysail, and we turned for the Hook. The wind had shifted and was dead ahead for that much-desired spot. We found on the off-shore tack that the "old pot" was averse to going about, and the sea was so confused we had to wear her. Sometimes when we stood in we found we were about where we were when we started. We had not then learned that the forestaysail was useless in a bad sea—a small jib was what we should have set.

After a long thrash to windward we reached the Kills at about 11 o'clock, and sat down to a plentiful dinner, which had been prepared after we struck smoother water. Possibly it was cooked with the pots upside down.

As we sat around the hospitable board full of good things, both dry and wet, we wondered what could have become of Meta. We learned the next day that the judges' boat had had a hard fight to get home. At one time, in spite of all the power they could get, the boat did not gain an inch, and serious thoughts were entertained of running before it. Of the Meta we heard nothing, but several days afterwards came the news.

When the squall struck and orders were given to lower away, wet halyards jammed in the blocks, which were too small, and the sail would not come down. At this moment the beach was dimly seen through the rain, and, as she could not go about in that condition, a desperate risk was taken and the helm put up. When the sail came over the boom broke in three pieces, and was secured after a while at great risk to the crew.

The sail was partly hoisted, the bunt of it was lashed as well as possible, and she was turned to windward. But the lashing would not hold, and after several attempts the helm was put up to run before it down the beach. It was thought that the wind would die out after the squall; but it did not, and it was decided to try and run for the tail of Barnegat Shoal, get in behind it, and anchor. It had turned very cold, there was no means of making a fire, and there was nothing to eat on board. The boat had been stripped of everything, nothing but ballast and sails being left. Added to this, all the cleats had pulled off during the race and there was nothing to belay anything to but the main sheet bitts. The men were wet through, worn out with the exposure and want of food, and the future looked very dim.

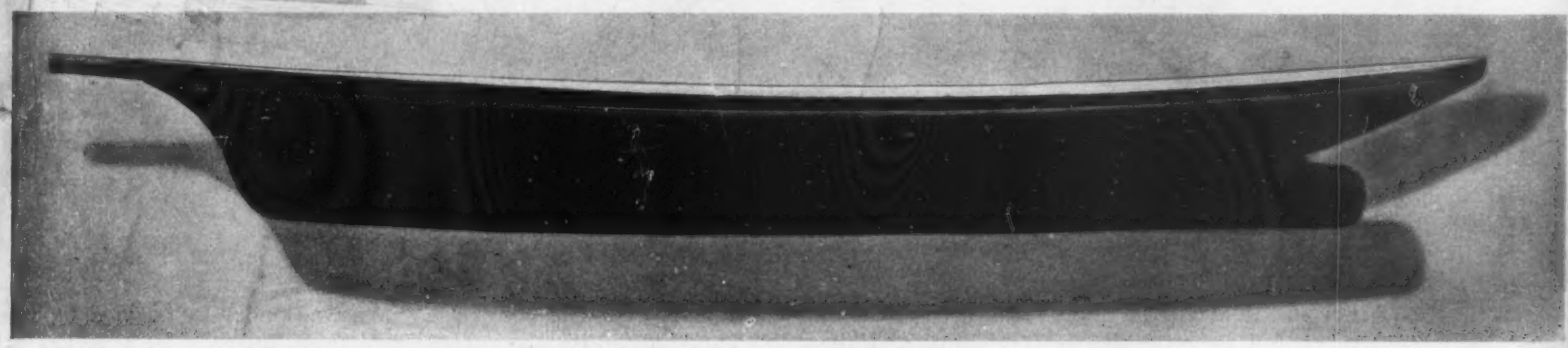
Let us step for a moment on board of that boat. How dark and cold it is! The wind cuts like a knife. Not a sound is heard but the roar of the water as the boat rises on a sea and then pitches down into the black night. As we near the shoal, Barnegat Light shows up, and the dim light of the binnacle shines upon the pale face of the man steering. As we come nearer the shoal we hear the premonitory moaning of the surf.

Just as we get near the moon shows out like a flash. The background of sky is as black as ink, and like the flash of a camera we see the glittering, tumbling surf, torn by the wind into fantastic forms, while high above the shoal is a veil of mist that sways and shimmers in the moonlight. In an instant all is dark again. Capt. Joe, whose steady eye and hand have piloted many a boat to victory, takes the wheel. To steer for that hell of water seems madness, but the glimpse that the moon gave us is all that Capt. Joe needs; he has been here before.

In the lee waist stands a man who knows this shoal like a book, for he has run this beach year in and year out. By his side stands another with a lantern covered by a cloth. With a mighty heave the lead is swung far ahead, and, quick as a flash, the slack is hove in, while the lantern is flashed for a moment on the line. A steady voice sings out: "Six fathoms!" Again the lead—"five fathoms; luff a bit!" Again the heave—"and a half three!" A great wave breaks just inshore and goes for the shoal like a limited train. If that had caught us it would have been the end. Another quick cast—"Three fathoms; luff sharp!" In a smother of broken water, with the roar of the surf in our ears, we turn, and in a few minutes slide under the lee of the shoal and the water grows smoother.

"Stand by the anchor!"

"All ready!" comes aft. The boat is luffed up, and, as she loses her way, "Let go!" comes sharp and quick. She swings to the chain and we are safe—if the wind does not shift.



META, A TYPICAL CENTERBOARD BOAT OF TWENTY-FIVE OR THIRTY YEARS AGO.

Lessons in Splicing

HOW TO MAKE THE SHORT SPLICE

By WILLIAM E. PARTRIDGE

AFTER having mastered the eye splice and become familiar with the method of "tucking" strands, both full-size and tapered, one will have no difficulty in mastering the short splice. This method of joining ropes is very useful, as the splice can be quickly made, and requires but a short length of the rope. It has a few disadvantages which prevent its use for some purposes. As usually made, it is somewhat larger than the body of the rope, so that it does not always run through a block without jamming. When the strands are tucked but once full-size and then tapered it is not quite as strong as other parts of the rope.

To make a short splice, the ropes to be spliced are opened or unlaid for a sufficient distance. For the beginner this should be ten times the diameter of the rope, so that there will be no trouble from having the ends too short to handle. Then whip the end

of each strand so as to prevent it from fraying. See Figure 1. Now if mistakes are made, they can be corrected without having the strands fray out.

The beginner will find a tarred rope about ½ inch in diameter easy to handle and pleasant to work with, as the strands stay in place and the tar keeps the hands smooth. Any kind of small twine will answer for whipping.

After the strands on each rope are opened and the ends whipped the ropes are brought together as shown in Figure 2. The strands of one rope pass between those of the opposite rope. They are then drawn together, or butted, as it is termed, and for the sake of making the work easy a whipping may be put about the strands in the center. See Figure 2. This may be laughed at by the old hands, but for the beginner it gives a certain security in the operation which is worth all the trouble it takes. Some of the experts even endorse this method of work, and say it should always be followed.

Now take the rope in the left hand, grasping the three loose ends firmly, and raise the top strand *B*, Figure 3, with the marlin spike. Tuck strand No. 1 under it, carrying it over strand *A*, which has its free end in the left hand, No. 1 being this side of it, going under *B* and over *A* toward the right, Figure 4. When this strand has been pulled tight the rope is turned a little toward the person, and strand No. 2, Figure 5, is carried in the same way over strand *B* and under strand *C*. The marlin spike is used in each case to raise a strand before tucking another under it, or the strands may be twisted apart with the fingers. Strand No. 3 is done in the same manner.

Having been once round the rope, and all the strands at the right having been tucked and drawn tight, the rope is turned "end for end." Each of the lettered strands is now tucked in the same manner and following the same order as those on the other end of the splice. See Figure 6. Each strand is taken over the strand that lies next it and under the one beyond.

In Figure 6 we have the splice with one set of strands tucked once (those at the left) and the first strand on the right just pushed under the proper strand. All the strands are now tucked on this end, as before. For the sake of a uniform procedure, the splice is again turned "end for end" and the first strands tucked a second time. Then the rope is again reversed and a second tucking takes place on the other end. This procedure is followed till each set of strands have been tucked three times. The strands are then cut off, leaving about an inch projecting.

Made in this way, we have a strong, bulky splice. It will not go through the swallow of a block, but it is as strong as any part of the rope. As soon as each set of ends have been stuck once full-size it is well to begin what is called tapering the strands. This is done by cutting one-third of the yarns from the under side of each strand before it is stuck the second time. At the third sticking one-half of the remaining yarns are cut out from the under side, as before. The ends are left projecting an inch or more, according to the size of the rope. These loose, fuzzy ends wear off, or are drawn into the rope, and the splice only shows as a slight enlargement. When a sailor has finished a splice he usually drops it on the floor and rolls it under his foot. When the rope is too large for this the splice is hammered on all sides with a marlin spike, so as to fit the parts closely into the scores in the rope.

Fig. 1.—Rope unlaid and strands whipped ready to make a short splice.

Fig. 2.—Ends of two ropes unlaid, brought together and the strands interlocked. The ropes are "butted" firmly, and a whipping is put around the middle.

Fig. 3.—Making a short splice. Raising a strand with a marlin spike.

Fig. 4.—Putting the first strand through, or tucking it.

Fig. 5.—After strand No. 1 has been tucked the rope is turned toward the body, and strand No. 2 is tucked and drawn taut.

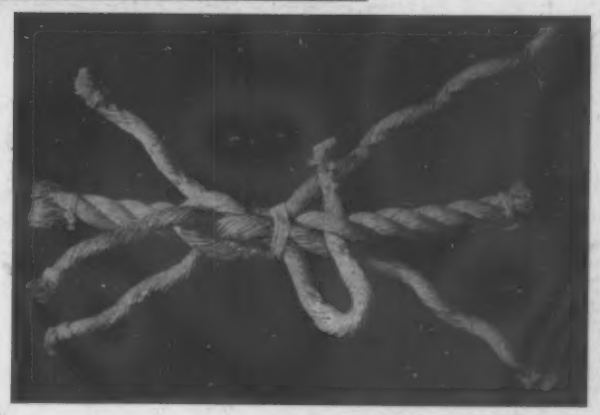


Fig. 6.—The splice is now turned end for end, and the first strand on the other side is tucked in the same manner as strand No. 1.

One side finished, other side tucked once.

Working a Traverse in Dead Reckoning Sailing

By HERBERT L. STONE

A LARGE part of our coastwise shipping is done entirely by dead reckoning, on many of the smaller schooners the sextant and chronometer being an unknown quantity, and surprisingly good results are obtained. In fact, seamen take more pride in their dead reckoning than in working sights, and even in steamers the officers will tell you, with evident satisfaction, how they sailed from Diamond Shoals to the Scotland, feeling their way with the lead when it was so thick that they could not see a ship's length. In yachting, most of the long-distance races along the coast are sailed on dead reckoning, with the aid of the chart, lead line, and a landfall now and then to verify the position. But it is only by the utmost vigilance and attention to the course, speed and distance that accurate results can be obtained. By far the most difficult part of the calculation, and the one in which errors are most likely to creep, is in beating to windward—jumping into a head sea, with frequent tacks, each sailed on a different course, of unequal lengths, and sailed at different speeds. When this is done at night and out of sight of headlands, the matter becomes more difficult and the reckoning more uncertain. Take, for instance, the Cape May race. After taking departure from Fire Island Lightship and laying the course for Northeast End Lightship, some 120 miles away, with a southwesterly wind, some half-dozen tacks are made, on various courses from S.S.E. to W.S.W of different lengths, and the skipper wants to know how far he has sailed in a straight line and the true course he has made.

The usual way is to plot these various courses on the chart, but in a small boat that is jumping at all, or if at night, with poor lights, or yet where the tacks are short, this is a difficult and rather uncertain method. So recourse may be had to what is called a traverse table. On large vessels traverse sailing is usually resorted to when off soundings and when the scale of the chart is so small as to make the plotting of short courses inaccurate. But on small boats it can be used to good advantage whenever one is out of sight of land for any length of time. It will often be found convenient and useful to know how to work a traverse quickly whenever one is sailing by dead reckoning. A traverse is defined as an irregular track which a ship makes by sailing on several different courses. The problem involved is simple, and consists of reducing the several courses and distances to a single course and distance, and finding the corresponding difference of latitude and longitude. The only thing we need is a book of Bowditch's navigation tables, used in all navigation, and obtainable at any nautical instrument store for about one dollar and a quarter.

Rule off with a pencil on a sheet of paper six columns some five or six inches long. Name these columns as follows: Course, Distance, North, South (being difference of latitude), East, West (being difference of departure, or distance east and west of the meridian). This makes our traverse table. In the first column enter each course sailed, and in the second the distance sailed on that course. From table No. 1 of the book of tables referred to above, and under their respective columns, find the latitude and departure for each one of these courses and enter them in the proper column on our traverse table; i. e., when our course is southerly, the difference of latitude as given in the table for the number of miles sailed must be entered in the column South; when course is northerly, in column North. The departure, when westerly, must be entered under West; when easterly, under East. Now add the difference of latitude in each column and subtract the lesser from the greater; the remainder is the difference of latitude the vessel has made in nautical miles, and, of course, of the same name (N. or S.) as the greater. Do the same with the departure, and we will have the distance sailed east or west of the point of departure. This position may be immediately measured off on the chart with a pair of compasses, using the scale of distances as shown on the margin of the chart, being sure to use that at either the right or left-hand margin and opposite the course we have sailed. If this course has been a long one in a north or south direction, use the scale opposite the center of it to get the average. Never measure distances on a Mercator's chart from the top or bottom margins. Or, if we turn again to table No. 1, and hunt until we find this difference of latitude and departure we have worked up, in adjoining columns, the distance shown in the distance column at the left of the table will be the distance sailed in a straight line; and the course shown at the top (or bottom) of the page will give the course sailed. This can be immediately plotted.

To make this somewhat clearer, the following example is given and shows how the traverse table is made and how it works out in practice.

Suppose we take our departure from the Fire Island Lightship bound for Northeast End Lightship, which bears about S.W. by S. The wind is ahead, and we stand first off shore on a course S.S.E. for one hour, during which we sail 7 miles. Enter this course and distance in the first two columns of our traverse table. Then we go about and stand in on a course W.S.W. for two hours, sailing in that time 13 miles. (These courses are supposed to have been corrected for variation of compass and leeway.) Enter this under the other as the second course. If four more tacks are taken during the night, enter them in the table as we did the others. By referring to Fig. 1 it will be seen how this is done. Now we want to find our position

Course.	Distance.	Diff. of Lat.		Diff. of Dep.	
		N.	S.	E.	W.
S. S. E.	7	....	6.5	2.7	....
W. S. W.	13	....	5.0	....	12.0
S. by E.	30	....	29.4	5.9	....
W. by N.	8	1.6	....	....	7.8
S. S. E.	10	....	9.2	3.8	....
S. W. by W.	28	....	15.6	....	23.3
		1.6	65.7	12.4	43.1
Subtract lesser from greater...		1.6	....	12.4	....
		South.	64.1	West.	30.7

FIG. 1.—TRAVERSE TABLE.

Open the book of tables we have bought at table No. 1. The various compass courses will be found at the top and bottom of each page of the tables, given to quarter points, while the latitude and departure are given for every mile up to 300 or so. After finding the S.S.E. course, look in the first column of that table, marked distance, for 7—the number of miles we have run. The latitude for this distance is given as 6.5 and the departure is given as 2.7. As we have sailed in a southerly direction, enter the former in the column headed South in our traverse table; and, as we have gone easterly, enter the latter under East. For the second course find W.S.W. in the table, and, locating 13 in the distance column, we get 5.0 for latitude and 12.0 for departure. These we enter in the South and West columns of the traverse table, as that has been our general direction. Repeat the operation for the other courses. In using the tables care must be taken in those cases where the course sought appears at the *bottom* of the page to read the table from the bottom up, instead of down, as the latitude and departure columns are reversed.

Now, by adding each column and subtracting the lesser from the greater in both latitude and departure, we find that we have made 64.1 miles southing and 30.7 miles westerly from Fire Island Lightship—our point of departure. Knowing the position on this point, it is easy to prick off our present position on the chart, from which the true course can be found for Northeast

End Lightship and the distance measured. To get the straight course and the distance we have sailed from Fire Island Lightship, we can find it from this same table No. 1 (and so verify our plotting on the chart) by hunting in the latitude column until we find 64.1 opposite 30.7 in the departure column. When this is found the distance shown in the first column is the distance in a straight line—in this case 71 miles—and the course shown at the top or bottom of page is the course sailed, in this example, as we have sailed in a general southerly and westerly direction, the course is found to have been S.S.W. 1-4 W. It will be often found that the exact tenth will not be given in the table, in which case we take the nearest approach to them we can find (which in this example happens to be 64.2 lat., 30.4 dep.). The difference is too slight to take in consideration. Be sure to remember whether you are working the table from the top or bottom.

Table No. 2 is the same as No. 1, except that the courses are worked out to degrees of the compass instead of points, and need only be used for steam, or for extremely close reckoning.

To turn this departure into degrees and minutes of *longitude* for the position the ship is in, find the middle latitude between the north and south points of our traverse computation, and in table No. 2, among the degrees at the top of the page, turn to this latitude just as if it were a course. Then in the *latitude* column apply the departure the ship has made, and against it, in the distance column will stand the difference of longgitude in minutes. If this is over 60, it should be divided by 60 to reduce it to degrees.

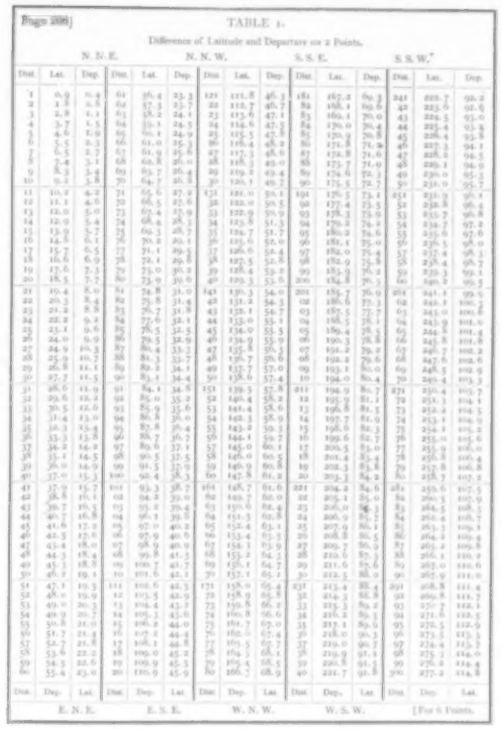


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TABLE 1.

Difference of Latitude and Departure for 2 Points.

N. N. E.			N. N. W.			S. S. E.			S. S. W.		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.9	0.4	61	56.4	23.3	121	111.8	46.3	181	167.2	69.3
2	1.8	0.8	62	57.3	23.7	122	112.7	46.7	182	168.1	69.6
3	2.8	1.1	63	58.2	24.1	123	113.6	47.1	183	169.1	70.0
4	3.7	1.5	64	59.1	24.5	124	114.6	47.5	184	170.0	70.4
5	4.6	1.9	65	60.1	24.9	125	115.5	47.8	185	170.9	70.8
6	5.5	2.3	66	61.0	25.2	126	116.4	48.2	186	171.8	71.2
7	6.5	2.7	67	61.9	25.6	127	117.3	48.6	187	172.8	71.6
8	7.4	3.1	68	62.8	26.0	128	118.3	49.0	188	173.7	71.9
9	8.3	3.4	69	63.7	26.4	129	119.2	49.4	189	174.6	72.3
10	9.2	3.8	70	64.7	26.8	130	120.1	49.7	190	175.5	72.7
11	10.2	4.2	71	65.6	27.2	131	121.0	50.1	191	176.5	73.1
12	11.1	4.6	72	66.5	27.6	132	122.0	50.5	192	177.4	73.5
13	12.0	5.0	73	67.4	27.9	133	122.9	50.9	193	178.3	73.9
14	12.9	5.4	74	68.4	28.3	134	123.8	51.3	194	179.2	74.2
15	13.9	5.7	75	69.3	28.7	135	124.7	51.7	195	180.2	74.6
16	14.8	6.1	76	70.2	29.1	136	125.6	52.0	196	181.1	75.0
17	15.7	6.5	77	71.1	29.5	137	126.6	52.4	197	182.0	75.4
18	16.6	6.9	78	72.1	29.8	138	127.5	52.8	198	182.9	75.8
19	17.6	7.3	79	73.0	30.2	139	128.4	53.2	199	183.9	76.2
20	18.5	7.7	80	73.9	30.6	140	129.3	53.5	200	184.8	76.5
21	19.4	8.0	81	74.8	31.0	141	130.3	54.0	201	185.7	76.9
22	20.3	8.4	82	75.8	31.4	142	131.2	54.3	202	186.6	77.3
23	21.3	8.8	83	76.7	31.8	143	132.1	54.7	203	187.5	77.7
24	22.2	9.2	84	77.6	32.1	144	133.0	55.1	204	188.5	78.1
25	23.1	9.6	85	78.5	32.5	145	134.0	55.5	205	189.4	78.5
26	24.0	9.9	86	79.5	32.9	146	134.9	55.9	206	190.3	78.8
27	24.9	10.3	87	80.4	33.3	147	135.8	56.2	207	191.2	79.2
28	25.9	10.7	88	81.3	33.7	148	136.7	56.6	208	192.2	79.6
29	26.8	11.1	89	82.3	34.1	149	137.7	57.0	209	193.1	80.0
30	27.7	11.5	90	83.2	34.4	150	138.6	57.4	210	194.0	80.4
31	28.6	11.9	91	84.1	34.8	151	139.5	57.8	211	194.9	80.7
32	29.6	12.2	92	85.0	35.2	152	140.4	58.2	212	195.9	81.1
33	30.5	12.6	93	86.0	35.6	153	141.4	58.5	213	196.8	81.5
34	31.4	13.0	94	86.9	36.0	154	142.3	58.9	214	197.7	81.9
35	32.3	13.4	95	87.8	36.4	155	143.2	59.3	215	198.6	82.3
36	33.3	13.8	96	88.7	36.7	156	144.1	59.7	216	199.6	82.7
37	34.2	14.2	97	89.7	37.1	157	145.0	60.1	217	200.5	83.0
38	35.1	14.5	98	90.6	37.5	158	146.0	60.5	218	201.4	83.4
39	36.0	14.9	99	91.5	37.9	159	146.9	60.9	219	202.3	83.8
40	37.0	15.3	100	92.4	38.3	160	147.8	61.2	220	203.3	84.2
41	37.9	15.7	101	93.3	38.7	161	148.7	61.6	221	204.2	84.6
42	38.8	16.1	02	94.2	39.0	62	149.7	62.0	22	205.1	85.0
43	39.7	16.5	03	95.2	39.4	63	150.6	62.4	23	206.0	85.3
44	40.7	16.8	04	96.1	39.8	64	151.5	62.8	24	206.9	85.7
45	41.6	17.2	05	97.0	40.2	65	152.4	63.1	25	207.9	86.1
46	42.5	17.6	06	97.9	40.6	66	153.4	63.5	26	208.8	86.5
47	43.5	18.0	07	98.9	40.9	67	154.3	63.9	27	209.7	86.9
48	44.4	18.4	08	99.8	41.3	68	155.2	64.3	28	210.6	87.3
49	45.3	18.8	09	100.7	41.7	69	156.1	64.7	29	211.6	87.6
50	46.2	19.1	10	101.6	42.1	70	157.1	65.1	30	212.5	88.0
51	47.2	19.5	111	102.6	42.5	171	158.0	65.4	231	213.4	88.4
52	48.1	19.9	12	103.5	42.9	72	158.9	65.8	32	214.3	88.8
53	49.0	20.3	13	104.4	43.2	73	159.8	66.2	33	215.3	89.2
54	49.9	20.7	14	105.3	43.6	74	160.8	66.6	34	216.2	89.5
55	50.8	21.0	15	106.2	44.0	75	161.7	67.0	35	217.1	89.9
56	51.7	21.4	16	107.2	44.4	76	162.6	67.4	36	218.0	90.3
57	52.7	21.8	17	108.1	44.8	77	163.5	67.7	37	219.0	90.7
58	53.6	22.2	18	109.0	45.2	78	164.5	68.1	38	219.9	91.1
59	54.5	22.6	19	109.9	45.5	79	165.4	68.5	39	220.8	91.5
60	55.4	23.0	20	110.9	45.9	80	166.3	68.9	40	221.7	91.8
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
E. N. E.			E. S. E.			W. N. W.			W. S. W.		

[For 6 Points.

LEAF FROM TABLE NO. 1. IF COURSE IS FOUND AT THE TOP, READ THE TABLE DOWNWARDS; IF AT THE BOTTOM, READ UPWARDS.

If a craft, close-hauled, made no leeway, this traverse sailing could be worked out very accurately; but, unfortunately, leeway must be taken into account. This is best done by making the allowance for leeway on each course sailed, and entering on the traverse table the corrected course. For instance, if the course sailed is S.W., with wind S., and it is estimated that the vessel is making one point leeway, enter the course in the log, and in the table likewise, as S.W. by W. In estimating the leeway, compare the angle of the wake with the center plank of the deck (never the quarter rail), and be sure that the boat is on her proper course at the time, and not swinging wide.

In working a traverse it is not necessary to enter up the courses on the table as they are sailed. They can be taken from the log at any time. The log book should be always written up promptly, and accuracy in this respect is of the greatest importance at all times.

After working the position, it is always advisable, if on soundings, to verify it by a heave of the lead. On the coast, even in small vessels, the lead should be kept well in hand. It is best to coil it down in a box, so that it will always run free. One cannot emphasize too strongly the importance of the lead when near the land.

English Yachting

LONDON, March 23, 1909

I HEAR from Belfast, which is the headquarters of the club through which Sir Thomas Lipton challenged first, that the sequence of Shamrocks, which began with one and got the length of three, is at an end. The story is, to put it in another way, that Sir Thomas has given up his quest for the Cup, and that anybody who likes can go after it now. If this is true, I think it is the worst thing that has ever happened to American yachting, because Sir Thomas was your friend amongst British yachtsmen, and you have turned him down rather unkindly. Of course, so long as the New York Yacht Club makes a little god of the deed a race on the terms offered by Sir Thomas is out of the question. Moreover, I admit that, if it is the speed of the boats that is to be the deciding factor, restrictions like those imposed by the new rating rules are out of the question, too. It is not denied that you know your own business best; but if you do not burn the deed you must not complain of the growing belief on this side of the Atlantic that you are afraid of losing the Cup.

There may be an impression in New York that, with Sir Thomas Lipton out of the way, some other will challenge. If such a hope is entertained, I fear it is doomed to disappointment. No doubt there are people here who would take up the quest if they could get a designer. But they will not get a designer, because the views which Sir Thomas has more than once expressed to your people are the views of Mr. Fife and Mr. Mylne, and, no doubt, Mr. Nicholson as well. Their opinion evidently is that they cannot build a challenger that will both get safely across the Atlantic and do itself justice in the Cup races. So long as British designers are of this mind, therefore, you need look for no British challenge.

The prospect very likely does not alarm you. Yet I think it ought, and I shall tell you why. As I said some time ago, we are to have only Shamrock and White Heather in our big class of cutters in the coming season. In the class below, however—the 15-metre—we are to have a muster of nearly a dozen, and the racing will be, for the first time on record, representatively international. One of the boats is being built in Spain, one in France and two in Germany. The rest are to be British-built. That is the first direct result of the International Rule to which the United States is not a party. Honestly, do you think you cut a dignified figure outside that group? I do not think you do. No doubt when Europe is the exclusive builder of the world's fastest racing yachts you will comfort yourselves with the reflection that in years gone by American sloops were the wonder of the seven seas, just as you reflect to-day that there were never square-rigged ships like the Baltimore clippers. But you will be outsiders in the sailing yacht business, just as you are outsiders in the merchant shipping business. You are outsiders in the steam yacht-building business because you failed to appreciate the fact that Watson steamers and Cox & King steamers were becoming as compelling a fashion for your moneyed people as Paris modes.

(Continued on page 322.)

AT the outset it may be said that this entire subject of lubrication is a new one to the average man. Until the advent of the small gas engine all matters connected with machinery, as well as machinery itself, were left wholly to the few specialists who spent their lives with it.

But the coming of the gasolene motor changed all this. Nowadays prosperous business men and learned jurists, captains of industry and idle millionaires speak knowingly of such dark subjects as "differentials," "strut-rods," "magnetos" and "high-tension coils," and intimately and heatedly discuss the differences that separate the principles of two and four-cycle motors.

Now, there is no one thing so intimately connected with both the up-keep and economy of anything mechanical as its proper lubrication. The chief engineer of a great transatlantic liner will get, regardless of its price, the particular oil he asks for, or he will walk out of his engine room, and the captain, board of directors and Standard Oil Company combined cannot get him back again. He gets what he asks for.

The lubricating oil used by the navies of the world is selected with as much care as the fuel, for, with a broken crankshaft or a heated bearing, all the coals of Newcastle would be powerless to turn a propeller blade.

It is the province of this article to deal with the subject of oil. To begin with, lubricating oil for gas-engine cylinders is *not* to be found in every can that is claimed by its label to contain it, and a little clearer understanding of the exact uses to which it must be put will help in getting at the bottom of the facts.

A gas engine develops its power through the explosion of intensely hot gases, and the oil used must do two things: (1) lubricate, and (2) burn up cleanly, so as to leave no carbon deposit. This means that the ideal lubricant for this purpose should have a maximum of lubricating qualities and a minimum of carbon-producing qualities.

Lubrication may broadly be termed the interposition of a soft, mobile substance between two opposing and moving surfaces of rigid or immobile substances for the purpose of preventing the rigid substances from sticking together. Mineral oil is the interposing substance used to-day. The difference between the better and the poorer qualities of it lies in its ability to "stay put." Oil grows thinner as the temperature increases, and, as all friction tends to generate heat, the separating film of oil has a tendency to get so thin that, unless it has a fairly good body to start with, it will not properly separate the surfaces.

If, on the other hand, a very thick or heavy-bodied oil is used, the molecular friction set up among the oil particles will be as great as the metallic friction it is designed to prevent. A selection lies between the two. To be concrete, experience has indicated that an oil having about the consistency of very heavy, rich cream will best answer the requirements.

To be technical (and probably unintelligible), a gas-engine cylinder oil should have a viscosity on a Saybolt instrument of between 250 and 350 at 70, a flash point of between 425 and 475, a cold (pour) test of better than 30, and a gravity of between 27 and 30 Baumé. Almost any oil with these physical characteristics will efficiently take care of the lubrication of a gas engine.

When it comes to the elimination of carbon from the oil, so that it may burn up cleanly and leave no deposit in the cylinders, a somewhat different problem presents itself. It must be remembered that all mineral oils are hydro-carbons, and that they will all deposit carbon to a certain extent, as carbon is one of the component elements; and here it may be stated that those oil manufacturers who advertise that the particular brands they make contain no carbon, or will not char, or are free from carbon, etc., make either deliberately false statements or else are ignorant of the very basic principles of their own business.

While carbon can never be wholly eliminated from mineral oil, however, the amount that it will leave as a residue when it is decomposed by heat may be materially lessened. This can be done in only one way, and that is by an extended process of filtration. Mineral oil in its natural state contains a quantity of coloring matter, which constitutes a separate element by itself. When the oil is burned, an analysis will show that the carbon residue comes from the fixed or combined carbon inherent in the oil itself plus the uncombined carbon or coloring matter suspended in the oil. It is this latter—this free carbon—which filtration removes, and after an oil has been completely filtered it will leave no carbon deposit beyond that which is due to the fixed carbon that never can be removed.

As it is both difficut and very expensive to filter mineral oils, it is not to be expected that they will be extensively marketed or easily procured, but the fact remains that highly filtered oils are the only ones that can be depended upon to properly answer the purposes of a marine gas engine.

Too much attention cannot be given to the lubricating oil one uses, for on its quality may depend one's personal safety. In selecting your oil, be sure that it is right, so far as its body, fire test, etc., are concerned. If you have any doubt as to this point, get your oil direct from some manufacturer whose word you can rely upon. Whether or not it has been filtered free from carbon you can tell by looking at it, for all filtered oils are light-colored and transparent; the unfiltered are dark, thick and muddy-looking. Cleanliness is absolutely necessary in motors, and dirty cylinders and foul spark plugs, due to excessive carbon deposits, are the root of all minor motor evils.

A 27-Foot W. L. Twin Screw Auxiliary Yawl

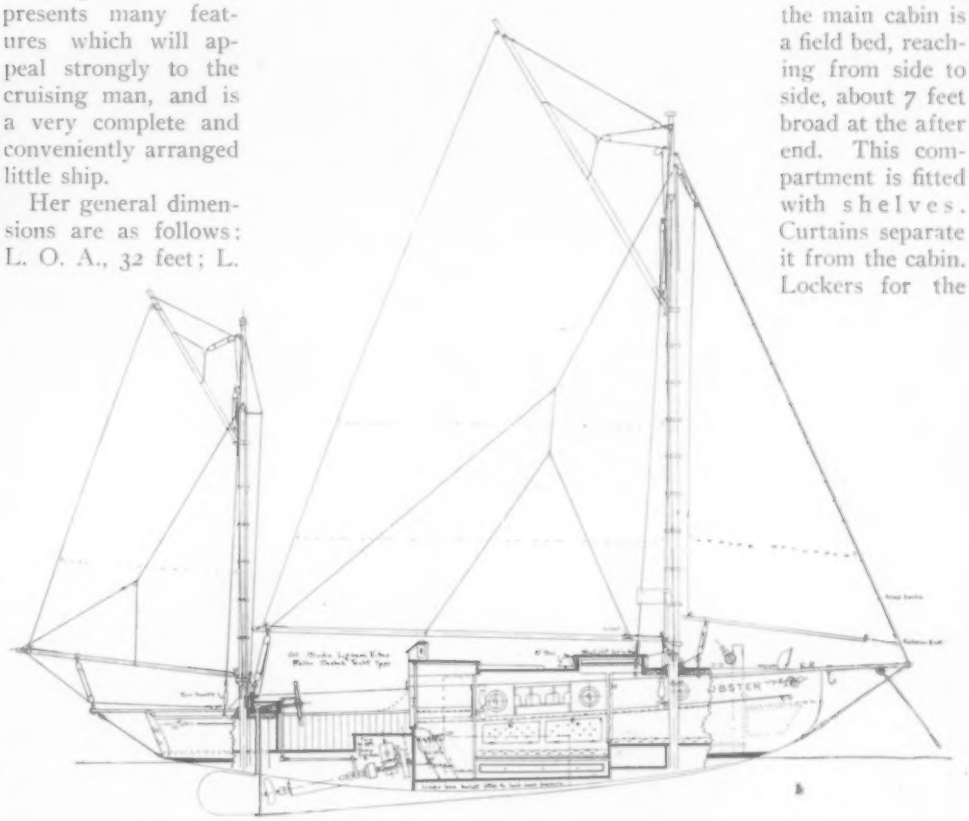
THE plans of the auxiliary yawl Lobster, as designed by the Bath Marine Construction Company, Bath, Me., will interest many staid windjammers who are now turning their thoughts to auxiliary power. She presents many features which will appeal strongly to the cruising man, and is a very complete and conveniently arranged little ship.

Her general dimensions are as follows: L. O. A., 32 feet; L. W. L., 27 feet; beam, extreme, 10 feet 2 inches; headroom, 4 feet 6 inches; draft, extreme, 34 inches; speed, about 8½ miles.

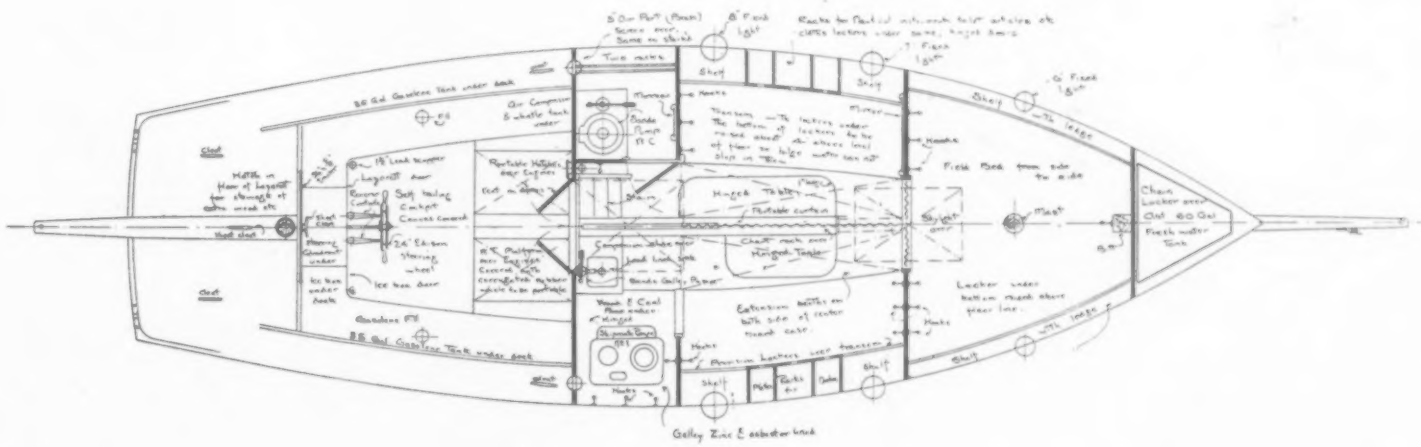
The frames, stem, keel, deadwood, stringers, etc., are of clear white oak, while the planking is of clear boat pine in long lengths, with butts made on oak butt blocks, between the frames. A gipsy windlass is placed on the sampson posts forward for breaking out the anchor.

The main cabin is arranged with transom berths on each side with lockers beneath and closets back of same. Above the closets are shelves and racks for dishes, etc. The bottoms of all the lockers are raised above the level of the floor, so that in a heavy sea it would be impossible for bilge water to slop up and wet their contents. Hung to the centerboard case, which partially divides the cabin, is a cooking table on one side and a dining table on the other, both of the hinged type. The transoms on both sides are fitted with extension pieces, so that two berths can be made about 4 feet wide. The back pieces are stored under the cushions, and the extra cushions for the extensions form the backs of the seats. At the after end of the main cabin on the port side is located the toilet-room.

On the starboard side is the galley, so arranged that the heat and the smell of the cooking go directly out of the companionway. The stove is a coal and wood range with fuel box under, and alongside is a lead-lined sink with a zinc drain and brass galley pump connected with the 50-gallon fresh-water tank placed in the bow. The galley compartment is lined with zinc over asbestos and is fireproof, an exceptionally good idea.



Forward of the main cabin is a field bed, reaching from side to side, about 7 feet broad at the after end. This compartment is fitted with shelves. Curtains separate it from the cabin. Lockers for the storage of articles not often wanted are located underneath the bed. Forward of the stateroom is the chain locker and a space for the storing of dress-suit cases, etc. A skylight is located over the stateroom and cabin, and there is also a hood ventilator

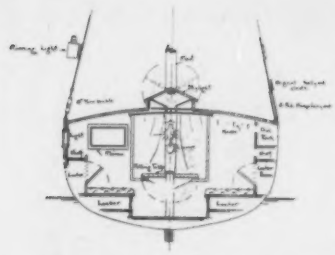


Copyright, H. C. White Co.

"Oh! East is East
And never the two

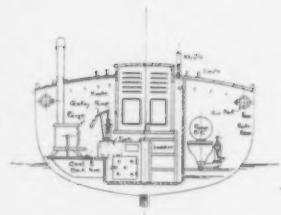
Copyright, 1897, by C. E. Bolles.

East is East and West is West,
never the twain shall meet."
—Kipling.

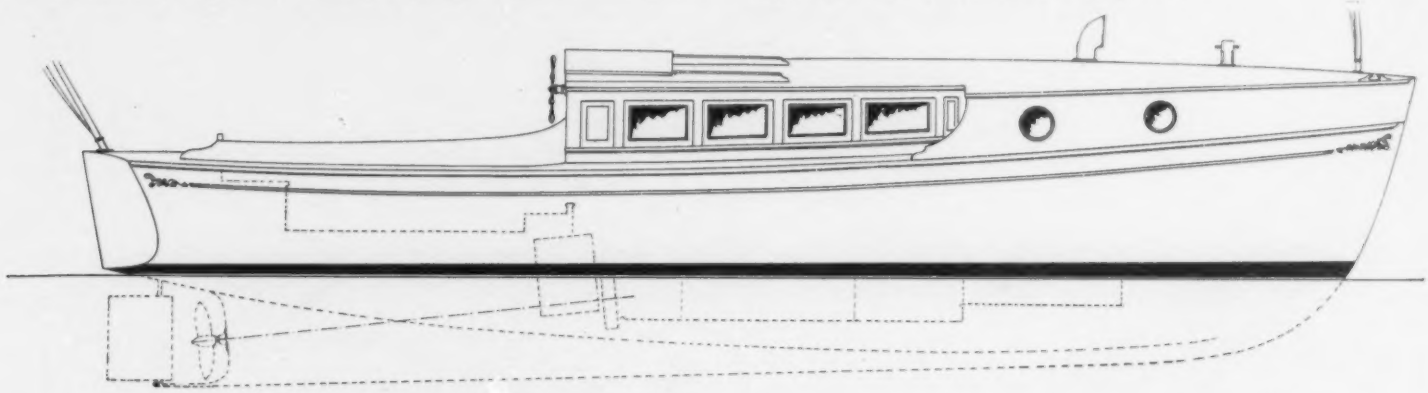


at the forward end of the stateroom and two hinged ports at the after end of the house. There are three dead lights on each side, 8 inches, 7 inches and 6 inches in diameter, making the cabin exceptionally well lighted and ventilated.

The cockpit is of the self-bailing type fitted with large lead scuppers. At the forward end of the cockpit is the engine compartment, which is made practically watertight, thus keeping the smell and fumes of the engine out of the cabin. This is one of the principal features of the design, as it was desired to get perfect safety and comfort in the cabin, so that fires and lights could be used without danger. The engine compartment contains, besides the two 6-horsepower engines and reverse gear, an electric outfit, which is on the starboard side. Under the deck aft on each side of the engine are located gasolene tanks of about 35 gallons capacity each, filled through plates on the deck. The top of the engine compartment is fitted with portable hatches, forming an admirable bridge or seat.



Under the after deck is a large lazarette, entered by a door on the port side of the cockpit, and a large ice box is on the starboard side, so constructed that it can be hauled out for cleaning. The power consists of two single-cylinder, 6-horsepower engines with reverse gears. This boat has proved to be an ideal small cruiser, being fairly fast under either sail or power.



A 30-Foot Cruiser

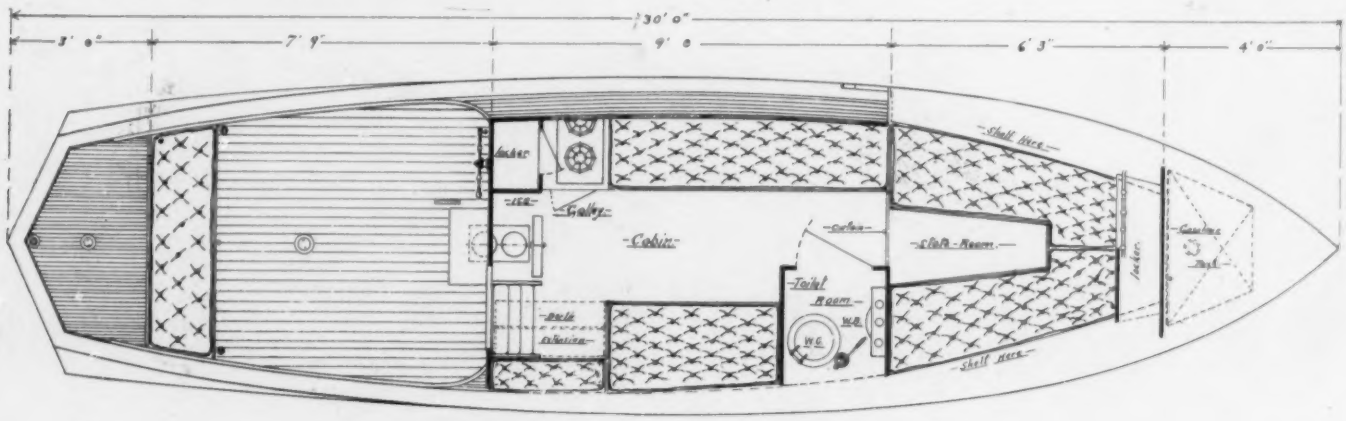
WE publish here the plans of a remarkably comfortable and ship-shape little cruiser designed and built by the Hudson River Motor & Boat Works, of Tarrytown, N. Y., for Mr. C. P. Holland, of New York. She is 30 feet in length over all, 7½ feet beam, and her greatest draught is 30 inches. She has a "V"-shape stern, a moderately raking straight bow, and her cabin is a combination of the raised deck and trunk types.

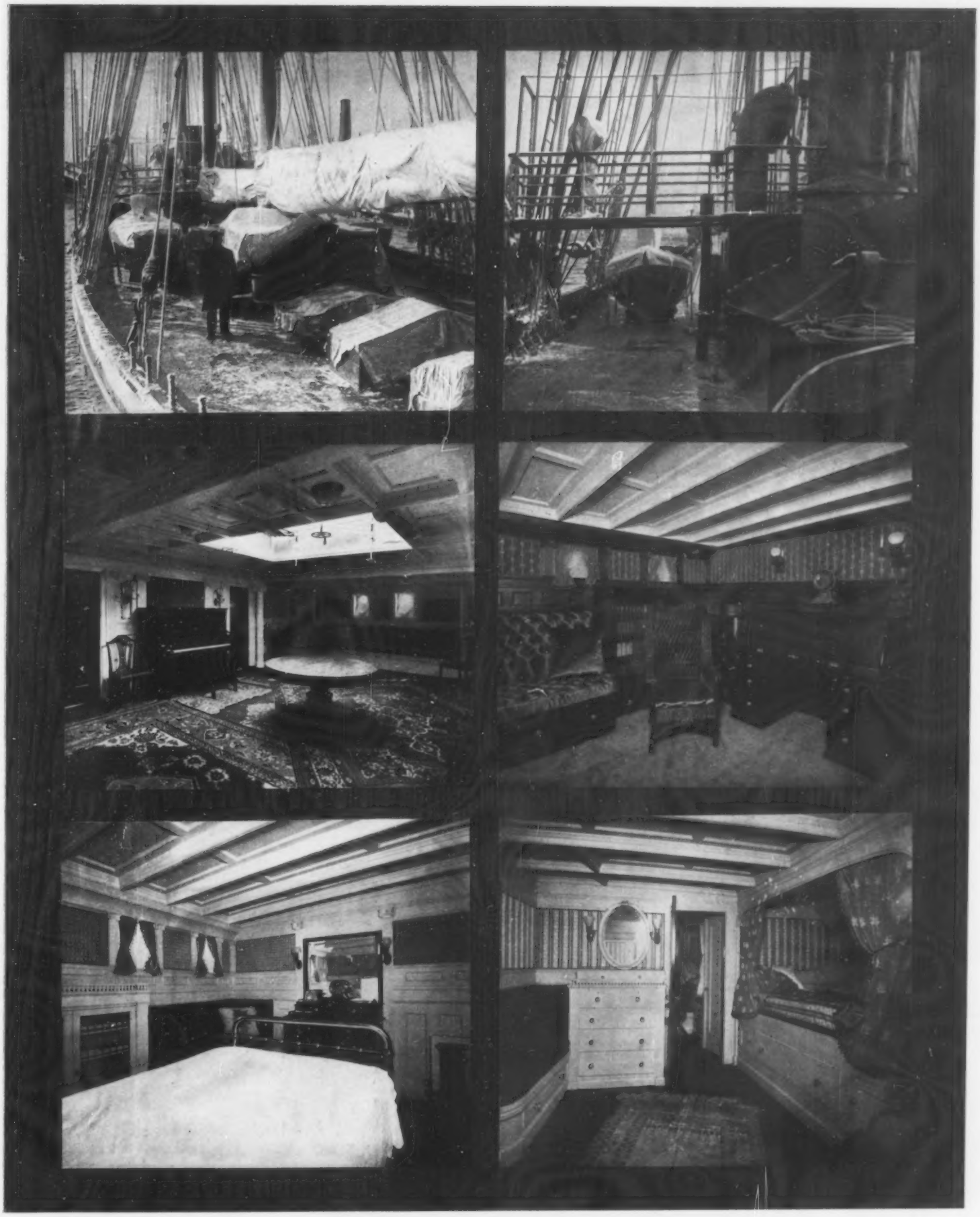
In the extreme bow there is a 60-gallon gasolene tank, separated by a watertight bulkhead from the forward cabin or stateroom. This latter is 6 feet 3 inches in length, with extension transoms on each side.

The floor of this forward cabin is 6 inches higher than that of the after cabin, and the two compartments are separated by a curtain. The after cabin is a combination of saloon, galley and engine room, and is 9 feet in length. On the port side is a transom 6 feet 3 inches in length, which, by extension, may be converted into a berth. On the other side is a shorter transom, which may be converted into another berth by raising up the companion steps and sliding in á couple of extension boards. The cabin will be finished in mahogany and white enamel.

Just aft of the port transom is room for a two-burner kerosene or alcohol stove and a dish locker. Underneath both stove and locker is the ice box. The engine is a 3-cylinder, 15-horsepower Van Epps motor, and is partly in the after cabin and partly underneath the raised hatch, which projects into the cockpit. The flywheel of the engine is flush with the forward end of the companion steps, which are on the starboard side of the after cabin bulkhead. She has a 7-foot 9-inch cockpit, square at the after end.

She has a three-bladed bronze propeller of 20 inches diameter and 24 inches pitch, and, with her engine developing 15 horsepower at 850 revolutions, she will make a speed of 12 to 14 miles per hour.

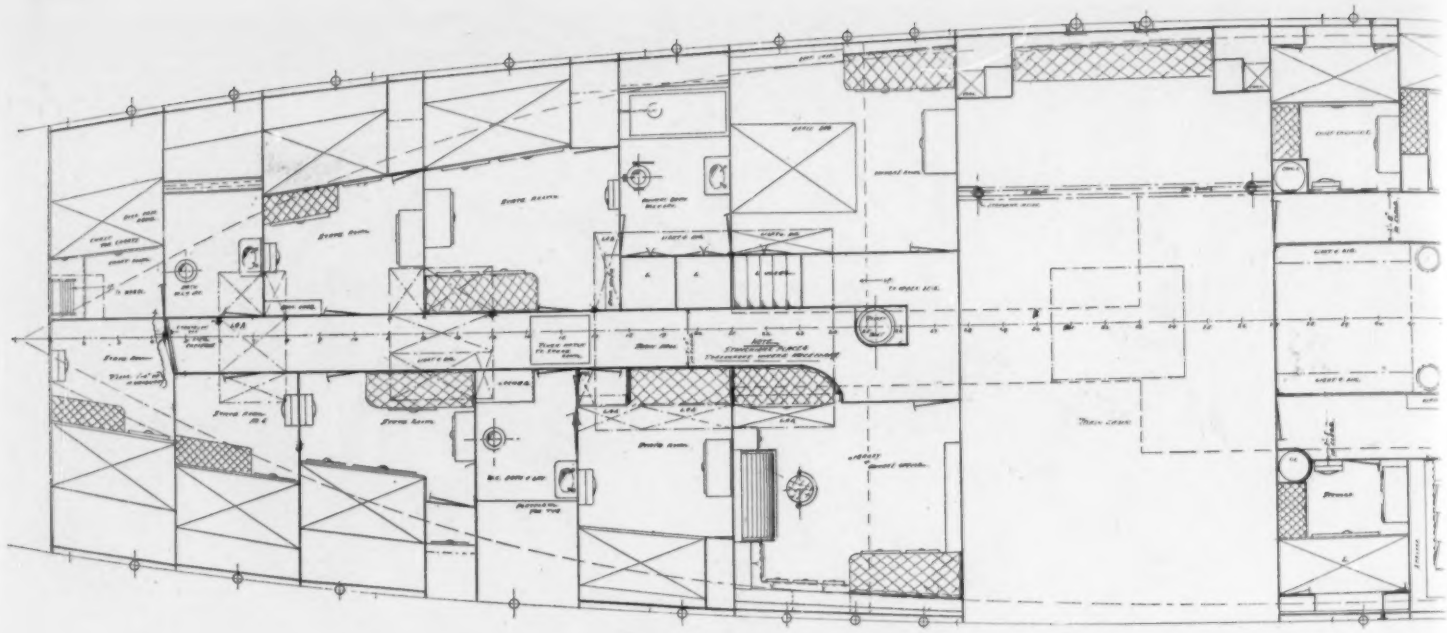




VIEWS ON BOARD VISITOR II.

After Deck.
Main Saloon.
Owner's Stateroom.

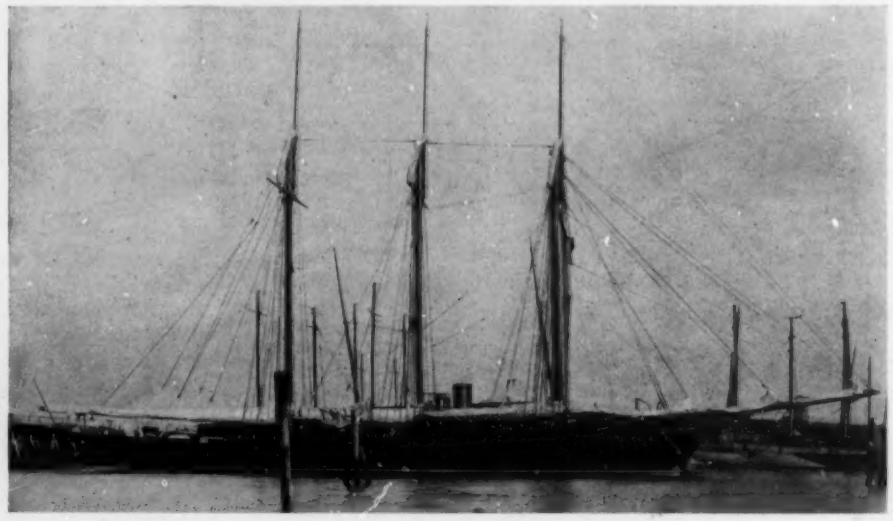
Forward Deck, showing Bridge.
Library and Office.
Guests' Staterooms.



A New Auxiliary for Off-Shore Cruising

AUXILIARIES have long been a favorite type with those who love off-shore cruising, offering, as they do, the opportunity for sailing, and at the same time having power capable of giving a fair speed when desired. As compared with the steam yacht of equal accommodations, they are more economical, especially on long cruises.

Visitor II, designed by Swazey, Raymond & Page for Mr. W. Harry Brown, of Pittsburg, the latest addition to the fleet of auxiliaries, is not only the largest one of schooner rig that has ever been built in this country, but is also conspicuous by being the fastest, having developed as great a speed under power as many out-and-out steam yachts. In this new vessel Mr. Brown has kept the name of his former fast steam yacht.

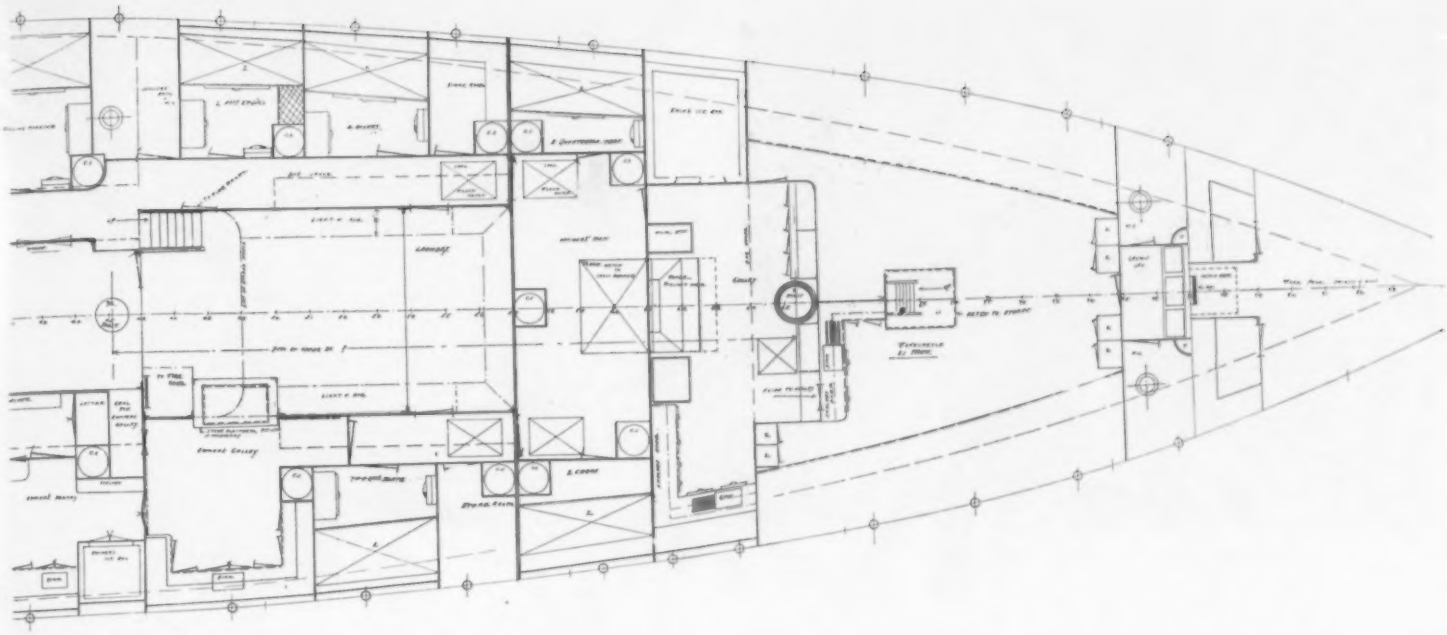


As the order for the new Visitor was placed in January, 1907, and she was not built until 1908, the designers had over a year to work out and perfect the vessel. The result has been that they have devoted much more study and time to the details and general arrangement than is given as a rule to the average steam yacht. Visitor II was launched at Lawley's yard, South Boston, in September of last year, and had her trial trip the following December. Her general dimensions are as follows: Length over all, 197 feet 6 inches; length L. W. L., 150 feet; beam, extreme, 32 feet 6 inches; draft (average condition), 15 feet; displacement at 15 feet draft, about 650 tons. Her accommodations are unusually commodious, and consist of seven staterooms for the guests, library or office, a very large main saloon, 30 feet by 17 feet, and a spacious smoking-room on deck.

Forward of the main saloon are the officers' and crew's quarters, engine room, and also the owner's private galley and pantries. There are eight staterooms for the officers and stewards. The ship also has a complete laundry outfit, which seems to be a great success, and should be carried on all large steam yachts.

Aft of the main saloon, on the starboard side, is a large library and office with a roll-top desk; and on the same side, following one another, are four staterooms and a bathroom. On the port side, aft of the saloon, is a large stateroom for the owner, with full-sized brass bed. A bathroom opens off of this stateroom. Further aft are two more staterooms and another bath, while at the end of the passageway separating the port from the starboard rooms is a chart room in a sort of vestibule, from which the companion stairs lead to the deck. There is also another companionway leading from the main saloon to the deck house amidships.

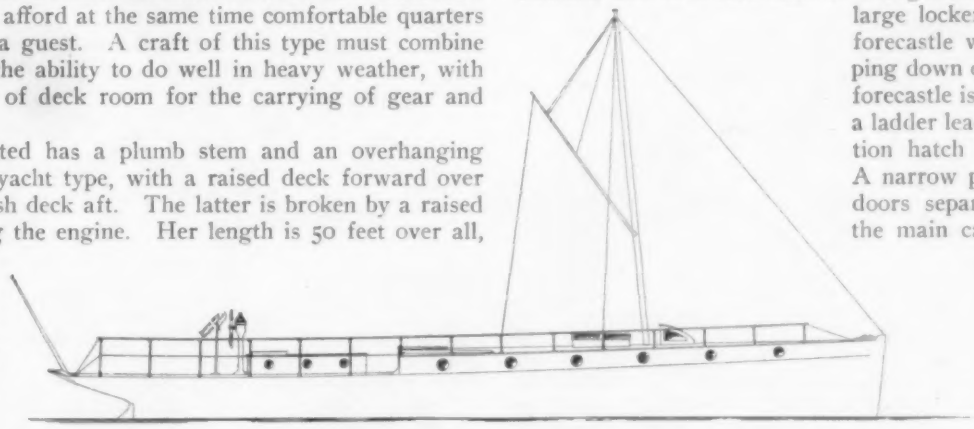
The machinery consists of one Scotch boiler 13 feet in diameter of the three-furnace type, with a working pressure of 200 pounds per square inch and with a surface of 65 square feet. Her engine is of the triple-expansion, link-motion, variable cut-off type, the diameters of the cylinders being 14½ inches for the high-pressure, 24 inches for the intermediate cylinder, and 38 inches for the low-pressure. There are also a complete set of auxiliary engines for running the dynamos, ice plant, force ventilation system, etc. So far, she has proved herself a remarkably successful craft, both in sailing and steaming. She averaged, on her trial trip, 11 and 3-10 knots. She will cruise under more economical conditions at 10¾ knots

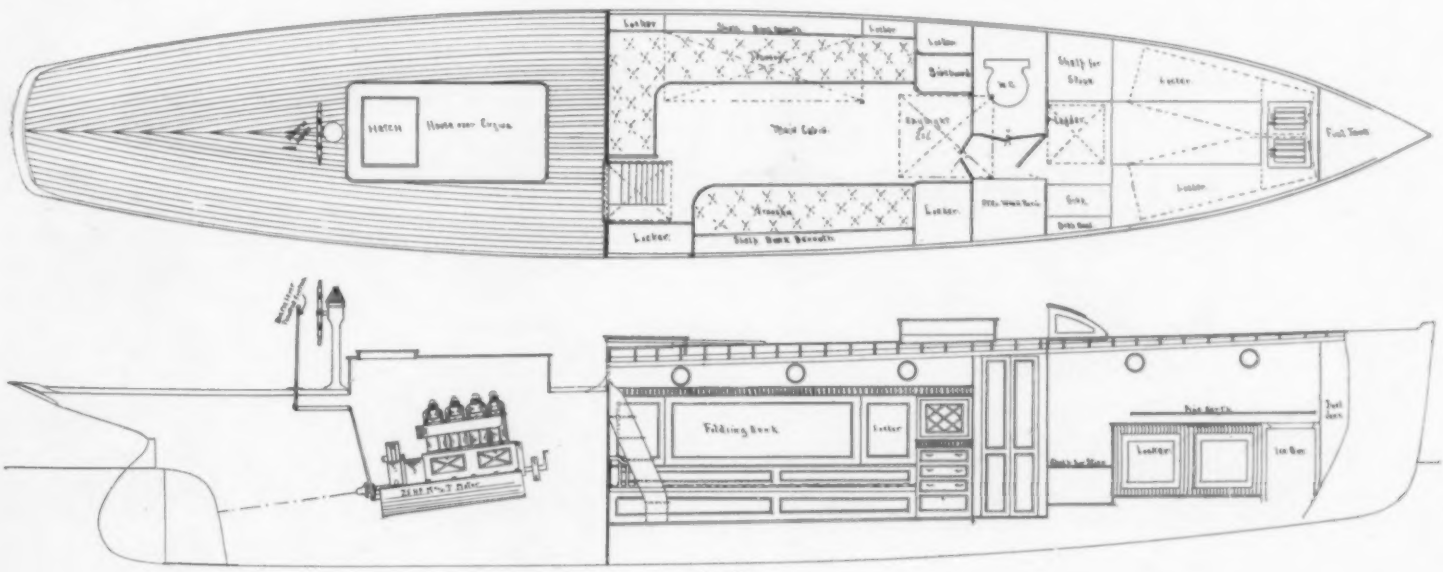


A 50-Foot Sea-Going Tender

THE accompanying plans are from an interesting design recently made by Messrs. Stearns & McKay, of Marblehead, Mass., for a launch intended to serve as a tender for a sailing yacht and afford at the same time comfortable quarters for the owner and a guest. A craft of this type must combine seaworthiness and the ability to do well in heavy weather, with a sufficient amount of deck room for the carrying of gear and supplies.

The boat illustrated has a plumb stem and an overhanging stern of the steam yacht type, with a raised deck forward over the cabins and a flush deck aft. The latter is broken by a raised deck-house covering the engine. Her length is 50 feet over all, with 9 feet 6 inches beam, and she has an extreme draft of 3 feet 6 inches. Her raised deck is 29 feet long, and the flush after deck is 21 feet in length, unbroken except by the deck-house already mentioned, which is 7 feet long by 3½ feet wide. In the extreme bow is a fuel tank of 200 gallons capacity. There are large lockers on each side of the forecastle with pipe berths dropping down over them. Aft of the forecastle is the galley from which a ladder leads through a combination hatch to the forward deck. A narrow passage with swinging doors separates the galley from the main cabin, which has transom seats on either side and at the after end. These seats can be easily converted into extension berths if necessary.





Pistons for Re-Bored Cylinders

Some of the salient features in the construction of steam engines equally apply in the case of the internal combustion engine. Some people believe that new pistons are unnecessary after cylinders have been trued up by reboring. Of course, in the process of re-boring a cylinder, only the merest film of metal is shaved off, but even so, to endeavor to adjust the old piston to the new bore is waste of energy, resulting also in considerable loss of power if carried out. A new ring and springs may be fitted but still the possibility of a perfect sliding fit is distinctly remote. As a matter of fact, a new piston and new rings are necessary, the former being made larger than before to compensate for the metal removed from the bore of the cylinder. Small pistons do not require a clearance of more than .004 inch, and then, of course, strong rings should be fitted. In any case, it is false economy to take up an ill-fitting piston by means of extra strong rings. It leads to increased friction, loss of power, and from every point of view is false economy. Rings should not be made to do the work of the piston itself.

Two-Port and Three-Port Motors

There has been, for some time past, in fact ever since the three-port engines have come into popularity, a hot discussion as to the comparative reliability of the two- and three-port types. It is common to hear the latter spoken of as a cheap engine, whereas the users of this type will often tell you that they would use no other. Everyone knows that the difference between the two types is simply in the method of admitting the mixture into the crank-case.

In a two-port motor the mixture is admitted to the crank-case by means of a light check-valve. The pressure on the crank-case is lowered as soon as the piston begins its up stroke, and this allows the check-valve to open, letting the explosive mixture enter. This check-valve closes again as soon as the piston begins its down stroke and the compression begins in the crank-case. In the three-port type there are none of these check-valves, and this admission port is uncovered by the piston itself. The actual time available for filling the crank-case is, necessarily, extremely short, but the action is simple and reliable, and, as far as possible, positive. There is also some slight loss of mixture in a two-port engine arising from the late closing of the check-valve. The question would seem to resolve itself into whether the simplicity and the positive action of the three-port motor outweigh the advantages of the longer admission period of the two-port type. The answer to this question, as we pointed out in an article last month, is largely a matter of design in the cylinder and the ports. One may have a well-designed three-port engine that will be better than a poorly designed two-port, or vice versa. On the whole, we should say that in the motor for ordinary use, simplicity should be the keynote of the design. One may be assured, however, that neither type has such a great lead over the other when reliable and successful manufacturers hold to one type or the other and obtain equally good results.

Loose Fly Wheels

It sometimes happens in internal combustion marine engines that the fly-wheel becomes loosened on the shaft when the motor is running. This is due to imperfectly fitting keys, or to their not having been driven sufficiently tight, and often results in serious damage. If it is allowed to go too long without attention it may break the crankshaft and wreck the engine.

This will not often happen in an engine that has just come from the shop, but if it becomes necessary to remove the fly-wheel for any cause, the inaccessible position of the engine or the lack of sufficient wrenches sometimes renders it almost impossible to replace the wheel tightly enough so that it will not work loose.

It should not be necessary to remove the fly-wheel except to replace a broken crankshaft, but it sometimes happens that there is a spark timer or cam located on the shaft which gets out of order and is inaccessible unless the fly-wheel is removed. This is usually the case in two-cycle motors where the design is not good.

The worst features of a loose fly-wheel are the facts that the false sounds made by it are misleading, and will cause the novice to suspect every other part of the machine of causing the trouble, and that it frequently imitates premature firing. Keep the fly-wheel key tight. Then if a pound develops look elsewhere for your remedy.

This method of securing a fly-wheel on a gasolene motor is a poor one, especially on a high-speed engine. The most up-to-date manufacturers are abandoning this crude method of securing wheels and are substituting the tapering shaft and key, forced into place by a lock-nut on the outside of wheel, or bolting the fly-wheel to a flange on the shaft.

A Device for Locating Obstructions Under Water

There has recently been invented and patented a device for illuminating a ship's course in foggy weather or on dark nights. While in its present shape it may not be of great practical value, it bids fair, when perfected, to be of much use when navigating close to shore or in narrow channels, especially in the navy. It consists of a number of submerged incandescent electric lamps, provided with reflectors for producing strongly illuminated patches of water, which may be close enough together to form a continuous bright track. Each lamp is buoyed at the end of a branch cable by a float, which may be constructed with the upper surface formed as a concave reflector. The device is recommended for ferry and shallow water channels, and for indicating a safe course of entry into harbors, etc. It is also applicable for indicating the position of sunken rocks or shoals, for the navigation of submarine vessels, and in time of war for locating the position of mines.

Pre-Ignition as a Cause of Pounding

There are so many causes which produce pounding in a gasolene engine that it is impossible to say off-hand how each may be detected and remedied, as one can only tell by long experience and by a trained ear what may be the trouble at first. The whole subject of pounding by itself might well fill a long article.

One of the most common causes, however, and one whose effect leads the novice to believe that his whole motor is coming to pieces, is caused by pre-ignition of the charge. Pounding caused by this defect produces a sharp, metallic ring, somewhat resembling the sound of a hammer striking upon an anvil, by which sound it may generally be diagnosed.

This pre-ignition may be caused by a number of things, among which may be mentioned too much compression, which keeps the charge from exploding at the proper time. Up to a certain point an increase of compression will result in increased power, but if this compression is increased to above this point, pre-ignition will take place, due to overheating, which causes the pounding and poor functioning of the motor. In gasolene motors 80 to 90 pounds compression is about the highest limit at which the engine will work properly, while from 60 to 70 pounds is generally considered a proper working compression.

Another fruitful cause of pre-ignition is produced by the spark not occurring at the right time. Hot wires, or faulty spark plug, or igniter, may account for this.

Inferior, or too much, cylinder oil may also be the indirect cause of this pre-ignition by causing deposits of carbon to form on the piston head. This carbon becomes heated, and is often the cause of the explosions continuing in the cylinder after the spark has been shut off. This carbon will often be heated until incandescent, just as a Welsbach burner comes to white heat in the gas, and takes a short time to cool off. Carbon deposits on piston heads may sometimes (according to design of engine) be scraped off without removing the cylinder head, by inserting a steel rod with a flattened end, and long enough to reach the piston, through the spark plug opening. After scraping, the deposit may be removed through the exhaust valve opening.

Some Points on Fitting Out

A Few Hints on Painting

NEARLY everyone who puts his own boat in commission knows how to clean her and get her ready for the coat of white or black, and knows how to apply the paint. The following suggestions, however, may be of value if one wishes to get the best results. If one mixes his own paints it is imperative that he should have nothing but the best and purest materials. Even if one buys ready-mixed paints, of which there are many good makes, it never pays to buy any but the best.

White lead is the first and most important ingredient in all paint. On its purity much depends. There are any number of substitutes for white lead, chief among which are chalk, zinc and white clays. These are often sold under the name of white lead, and the only way to detect their presence is by a chemical test. To do this take a small dab of the lead about the size of a pea, and place it on a piece of charcoal in which a hollow has been scooped, or on a bit of asbestos cloth. Now heat this over an alcohol stove or lamp, or with a painter's blow-pipe. By putting the point of the blow-pipe into the flame of a candle, and blowing gently, a fine and very hot flame is obtained, which near the outer end shows a point of blue. If the substance is reduced to globules of metallic lead it is pure. Adulterations prevent the lead from being entirely reduced to the metallic state, the adulteration remaining as an ash-like residue. This test should be very carefully conducted. Pure linseed oil is of almost as much importance as pure lead, and one should always get the best and from a reliable dealer. To get the best results, paints should always be freshly mixed.

In wood that has not been painted before, the knots and sappy streaks should be touched up first with shellac. Do not apply this too thickly, or the paint is liable to crack and peel after it is applied. It will be found that a good mixture for the priming coat will be in about these proportions: White lead, 50 pounds; 3¼ gallons of linseed oil, 2 quarts turpentine, and about a pint of drier. The second coat may be mixed as follows: Fifty pounds white lead, 3 quarts linseed oil, 3 quarts turpentine, and ¾ of a pint of drier. The finishing coat may be mixed in these proportions if a dull surface is desired: Fifty pounds white lead, 2 quarts raw linseed oil, 1 gallon turpentine and about a pint of drier. If a glossy finish is desired light varnish must be mixed with white lead thinned with turpentine. It is also a good plan to make the last coat up with one-third zinc and two-thirds white lead, or 20 per cent zinc to 80 per cent white lead. This is what is popularly known as "yacht white," and as a finishing coat is supposed to excel any other mixture. The zinc serves to prevent discoloration to a large extent.

Any metal or galvanized iron that comes below the water, either inside or outside, should be thoroughly cleaned every year, the rust scaled and given a heavy coat of red lead.

In the matter of brushes, get those of good size and have them good enough so that you can do satisfactory work. A small brush for a large surface is a nuisance, as is a large brush for a small surface. It usually pays to have a brush for each color to be used. And if there is anything like a sash, or the paint has to be brought up to a bright surface, "sash tools" will be needed. The round brush will generally be found to be the best.

Preventing Mildew on Sails

A great many different processes have been tried to keep sails from mildewing, some of which are very detrimental to the canvas. The best thing for new sails is to soak them in clean sea water; but the sails should be used for several days before doing anything of this kind to them, in order that all parts of the sails may be able to adjust themselves to the strains caused by the actual winds.

For mildew-proofing the following formula will be found to be a very good one and will not injure the canvas: Dissolve 1 pound of sulphate of zinc in 40 gallons of water; add 1 pound sodium carbonate. When dissolved, add 2 ounces tartaric acid. This holds the partially separate zinc carbonate without neutralizing the excess of the alkali. The canvas should be soaked in this solution for twenty-four hours. Then dry without wringing.

Calking

BEFORE calking it should be seen that the wood has been thoroughly dried out.

It is always best to clean out the seam to be calked if the boat leaked the previous summer, and the leaks can be located. If the seam is too tight to be cleaned with sharpened wire, open it by running the calking wheel along it, or by driving in the calking iron here and there along its length. For small boats either calking cotton or wicking is preferable to oakum, as the latter is too coarse for small seams. In driving the cotton in it is the usual practice to start from the right and work to the left. Drive the cotton in well at the beginning, and keep twisting as you drive it in. If the seams are small and uniform, a long thread of calking cotton may be twisted and laid along the seam and then rolled into it with the wheel, so that it is about one-quarter or three-eighths of an inch below the surface of the planking. If the seams are large in places, a thin calking iron must be used, and the cotton, instead of lying in a straight string, should be drawn back to form a little loop, so that more of it will be forced into the seam. Drive it in at several places, 2 or 3 inches apart along the seam, finishing up by driving it in all along. After finishing put plenty of thin paint on the cotton to keep the water out of it. Putty all seams with white lead putty forced in well.

Overhauling the Rigging

THIS is a matter that is often neglected by the amateur, and yet it is one of the most important things to be done. While the spars are drying it is best to go over the standing rigging, seeing that the canvas or pigskin covering of the splices and gaff bridles have not worn through. Renew it if it is in need of it. Look the rigging over where it fits over the masthead, and examine the turnbuckles to see that they have not been weakened by rust. Before painting iron turnbuckles see that the threads are well greased, to protect from rust, caused by any salt water that may run into them. Do not trust to iron turnbuckles too long. They are strong enough when new, but if rust attacks them they are apt to stick and twist off. Bronze buckles are best; and while they cost somewhat more they last much longer and are stronger and safer.

When it comes to running rigging it should be looked over carefully, and the manila rope should be untwisted, to see if the strands are sound, or soft and rotten in the middle. Do not reeve off any doubtful looking rope, as it may prove expensive in the end. Running rigging, if good care is taken of it, should go through two seasons, except, perhaps, upon racing yachts.

Removing Old Varnish

If old varnish is to be removed from spars, coamings, decks, etc., the easiest and cheapest way is to buy 10 cents' worth of oxalic acid and dissolve it in fresh water. Put plenty on. After the first application has dried put on a second and scrape while it is still damp.

It will be found that by this method the old varnish is easily removed. As soon as it is scraped, sandpaper the wood till perfectly smooth, and put on a coat of varnish as soon as possible, for while the oxalic acid bleaches out the wood, if a drop of water falls on it before the varnish is applied it immediately turns black, and you will have to repeat the whole operation.

EDITORIAL

Published by the Yachting Publishing Co.: Oswald Garrison Villard, President; Robert M. McBride, Secretary and Treasurer.

Report of the Commission Appointed to Revise the Navigation Laws

On February 8 the report of the Marine Commission, which has had in hand the revision of the navigation laws relating to safety of life at sea, was transmitted to Congress for consideration and future action. The recommendations in this report are of interest to all power-boat owners. The report is voluminous, in many instances merely re-stating present laws in such a manner as to cover motor boats subject to inspection, thus clearing up the ambiguity of the old statutes.

In general, it may be said that all motor boats under 35 feet in length used solely for pleasure are not interfered with in the proposed changes. The report provides that all steam or motor vessels of more than 35 feet in length between perpendiculars are subject to inspection, as are all those carrying passengers for hire, of whatever size. This would bring them more or less under the supervision of the Marine Inspection Service. The report also provides that all vessels of every description, whether subject to inspection or not, must carry a life preserver for every person on board—a very good thing in itself, but one very difficult to enforce on small pleasure boats. The inspection covers both hull and machinery, and there is no cost imposed upon the boat-owner for such inspection.

All of the provisions relating to safety of life at sea are rather strict for vessels subject to inspection, the requirements as to life-saving and fire-fighting equipment being rigid, although in this connection much is left to the discretion of the supervising inspector to determine what is necessary for privately-owned pleasure craft, and it is not expected that they will have to meet all the requirements imposed upon commercial vessels. In fact, through all the inspection regulations much seems to be left to the wisdom of the supervising inspector concerning proper equipment for motor boats, whether or not they carry passengers for hire. Probably the sections most vitally affecting motor-boat owners are those relating to the requirement of licensed officers. On this subject Sec. 54 says, in part:

> Any vessel subject to inspection under the provisions of this act shall not be navigated unless she shall have in her service and on board such complement of officers and crew as may, in the judgment of the local inspectors, be necessary for her safe navigation. * * * No steam or motor vessel carrying passengers for hire, whether or not subject to inspection under the provisions of this act, shall be navigated unless she shall have in her service and on board at least one licensed pilot and one licensed engineer; provided, that in open steam and motor boats measuring less than 35 feet between perpendiculars, one person, if duly qualified, may act in the dual capacity of pilot and engineer.

Sec. 53 provides for the examination as to qualifications and inquiry as to character of any person applying for license as master, mate, engineer or pilot. The inspectors must be satisfied as to the applicant's capacity and experience, and, as nothing more definite is stated, it is presumed that the regular requirements now in force covering these positions are intended to apply.

In commenting upon this proposed legislation, it is only necessary to say that there is but little likelihood of the bill being acted on during this session, and that it will hardly go through in its present shape. Some of its provisions are undoubtedly good, while others will work considerable hardship on the man who runs his own boat for pleasure, and it seems assured that Congress will not act hastily or against the power boat interests. With this revised bill went a strong minority report. With the bill as drawn up, it would be a physical impossibility for the government inspection force as at present organized to enforce its provisions. We shall probably go through this season with the laws as they now stand. As it is certain that we shall eventually have new laws on the subject, it behooves every power-boat owner and manufacturer to give the subject careful study and attention, to the end that we shall have proper representation at Washington when the bill comes up for public hearing, or before the committee appointed for further consideration of the matter. Especial stress should be laid on the fact that, if a license is required to operate motor boats over 35 feet in length, the qualifications necessary to obtain such license are not those that now obtain for steam and mercantile vessels, but are such as take into account the particular type and character of the power boats.

Naval Architects Classed as Professionals

At a recent meeting of the Lake Michigan Yachting Association, naval architects were declared professionals, and are debarred from sailing yachts in regattas held under the auspices of the association. Whatever may have been the reason for this decision, it seems ill-advised, and we are heartily out of sympathy with it.

On the face of it there seems no reason why a yacht designer, merely on account of his profession, which is in a great degree a technical one, should be barred from the amateur ranks. Except in rare cases, his knowledge of yacht handling has not been acquired in what is usually conceded to be a professional way, and there is no reason why his ability at the stick should be any greater by reason of his calling than that of the average man who has learned the game from the experience gained in sailing his own boat season after season, very often from his boyhood days.

If the average racing sailor cannot hold his own and win races without making rules to bar the successful ones, he should go out of the racing game. There are plenty of Corinthians who can hold their own against the best professional skippers. The definition of Corinthian as it obtains in most parts of this country is sufficiently stringent without hedging it around with more rules. The argument heretofore used that, by the experience gained in sailing boats of their own design, naval architects acquire knowledge that may improve their skill in future designs, seems reasonable and consistent.

In this particular case the decision is said to have been aimed at a particular designer. Whatever the merits, or demerits, of this case may be—I do not presume to know them—the effect of the rule, if carried out, cannot fail to have a detrimental effect on yacht racing and on the men themselves who participate in the sport. In times past the successful yacht has been frequently legislated to a back seat; do not let us get into the same habit with the successful yacht handler.

Paint Your Boat With the Whitest Paint

Every owner of a pleasure boat takes pride in its appearance. What is more beautiful, more pleasing to the eye than a graceful boat painted *pure white*?

Why not paint your boat with the celebrated Carter Strictly Pure White Lead and have the satisfaction of knowing that no other boat on your waters will be any whiter or better painted?

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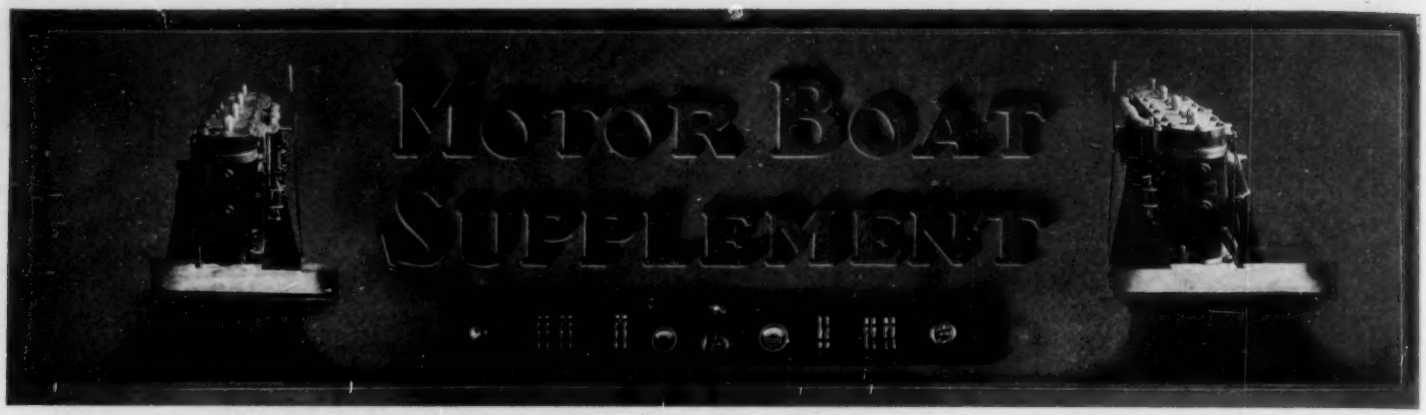


A Compact and Powerful Signaling System

W-O-O-F-F - B-R-R - O-W! The captain of the tug-boat turned over his wheel, and then looked ferociously at the approaching launch. She was not very big; in fact she was extremely small. She could not have been over 20 feet on the waterline, and yet, as the captain said, "She is making a sight more noise than I can. Jimminy, but she gave me a start, and I swung over for her just as if she was a real big boat."

The Klaxon, ready to attach to deck of boat.

"I wonder where she carries that noise factory of hers," and the captain scratched his head. What worried the autocrat of the tug and caused him to give respectful heed to the signal of the little fellow was no great mystery. It was simply a Klaxon hitched on to a six-cell dry battery.

The Klaxon is a comparatively new comer in the field of signaling devices, but no one who has ever heard it lift its unmelodious voice and break sections out of the atmosphere forgets it in a hurry. The question of how such a small, inoffensive little piece of mechanism can produce such a disproportionate amount of discord has been asked so many times that we believe a description of its internal action would be of interest to the readers of this department.

First of all, the Klaxon is built on the idea that however fond of music a man may be, he can get it in various places and by various instruments, from a full orchestra to a phonograph, much more effectively than through the medium of a boat signal. On the other hand, noise (with a great big "N") is the only thing that is expected of a marine signal, and the harsher and more discordant it is, the more attention it will receive at the hands of the boat signaled. The Klaxon is not built with the idea of putting the occupant of the other boat's pilot house or bridge to sleep with melodious harmony, but if he is inclined to be drowsy, it will cause him to suddenly wake, and take careful note of everything within a reasonable radius of his boat.

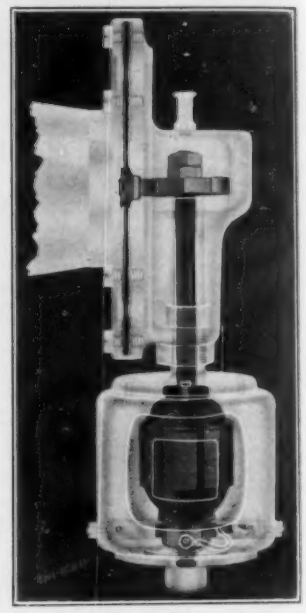
In external parts the Klaxon resembles a rather stubby automobile horn, but right at this point the resemblance ceases. The whole trick is in the mechanism which agitates its vibratory system. This mechanism consists of a miniature motor, wound on the same system and with the same care as the dynamo of an electric lighting plant, and of two field armatures just as carefully contructed. The motor is much more powerful than those used in many branches of manufacture, and in fact in the Klaxon factory one of them is used to run a small drill press.

The motor is set vertically in the casing and has an axle running on steel balls in a bushed bearing. It has, moreover, a lubricating system simply and practically arranged to put the oil where it is needed, and keep it away from the wiring. At the end of the vertical axle of the motor is set a wheel with ten teeth of specially hardened steel, and it is these ten teeth pressing against a shoulder on the diaphragm plate that produces the noise.

The diaphragm, which is 5½ inches in diameter and composed of specially prepared steel, is secured at its circumference with six bolts with cork washers, and as the motor has a speed of 3,000 revolutions a minute, and the wheel on the axle has ten teeth, there are 30,000 vibrations given to the diaphragm during each minute. These vibrations pass out through the nozzle of the horn and break on the ear in a harsh, deep-toned roar, which is more powerful than the whistle of the average sea-going tug. The horn itself is oval in shape, with the long axle vertical, thereby taking advantage of an acoustic principle, which tends to throw the sound forward instead of spreading it out on each side, as would be the case were the long axle horizontal.

The Klaxon is entirely self-contained, and the vibrating diaphragm shuts off the motor from the outside atmosphere. Connections to wiring are made by two specially arranged binding posts on the base of the motor casing. It will thus be seen that water, dust and dirt are absolutely excluded from the mechanism, and as a matter of fact it is not necessary to take the Klaxon apart in order to regulate the amount of friction between the revolving toothed wheel and the shoulder of the vibrating diaphragm—this regulation being achieved by a simple revolution of the eccentric sleeve through which the shaft revolves.

The Klaxon is made in two forms—one for screwing to the deck and the other for mounting on the pilot house, with an aiming handle which will throw the sound in any direction, on the same principle as the beams of a searchlight. Its ability to stand up under hard usage, to take punishment and give noise will appeal to the boat owner who wants a combination of utility and power ready to wake the echoes when he touches the button.



Sectional view of Klaxon, showing relative position of motor, shaft, toothed wheel and vibrating diaphragm.

It is manufactured by the Lovell McConnell Manufacturing Company, of Newark, N. J., and distributed by the Klaxon Company, of 1 Madison Avenue, New York City.

Front view of motor covering, binding posts, shaft and ten-toothed wheel.

An Active Yard

The New York Yacht, Launch & Engine Company, of Morris Heights, New York City, is particularly busy at the present time. Among the craft now under construction are the big 90-foot boat Reomar for Mr. Olds, of Lansing, Mich.; the 60-foot raised deck cruiser for C. M. Clarke, of New York, which will be equipped with two 24-horsepower 20th Century engines; a 56-foot raised deck cruiser for Mrs. Alice D. Weatherill, for which power will be furnished by a 30-horsepower 20th Century motor; a 53-foot glass-cabin day boat for Adolph Kuttroff, of New York, with 30-horsepower 20th Century engine; a 48-foot raised deck cruiser, with a 24-horsepower 20th Century engine for V. M. Beolchi, of Yonkers, N. Y.; a 40-foot transom-stern, glass-cabin day boat for W. H. Langley, of Belleport, L. I., which will have a 25-horsepower 20th Century engine; a 34-foot boat of the type C, Sea Rover model, for E. P. Runyon, of Newark, N. J., which is to have a 12-horsepower 20th Century engine; a 40-foot Sea Rover, type B, for R. L. Stillson, of New York City, and a 30-foot hunting cabin cruiser for Maurice Schreiber, also of New York City. The former of these will have a 24 and the latter a 12-horsepower 20th Century motor.

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The TEST insures to the buyer that the STANDARD Engine when installed in a boat and run under the rated speed and Horse-Power, will run ***continuously*** and ***smoothly*** under ***full power,*** giving a high ***sustained*** cruising speed to your boat.

In fact, not theory, a HORSE-POWER in mechanical work is equivalent to lifting a weight of 33,000 lbs. one foot high in one minute, and an engine should not be accepted that cannot develop the rated power continuously without over-heating, pounding or excessive wearing of parts.

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When a small engine consumes 1 pint per hour per brake horse power, and a large engine consumes 1 gallon per 10 hours per brake horse-power, the fuel efficiency is considered good and up to the standard. (Standard motors do this.)

Take these points into consideration when selecting your engine; also bear in mind that everything is supplied to make a complete and perfect working outfit with each motor. Prospective purchasers and customers are invited to see our engines tested.

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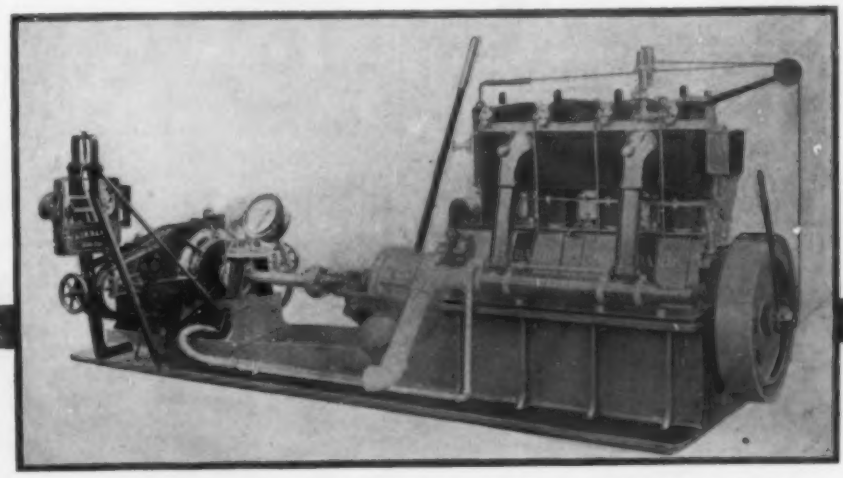

DUPLICATE OF OUR TESTING STAND, ADOPTED BY NAVAL ACADEMY, ANNAPOLIS

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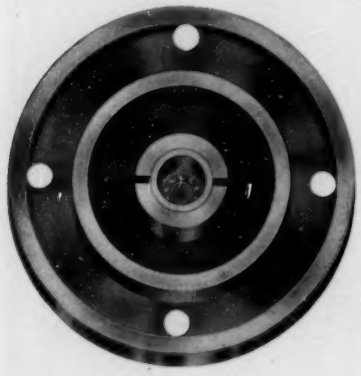
Something that will Help in the Selection of Equipment

Every motor boat owner is now busy selecting bits of equipment which will make his boat more complete for the coming season's sport. Of great assistance to him will be the new catalogue just issued by Chas. Kaufmann, of Oshkosh, Wis., which illustrates and describes a most complete line of power boat fittings.

This catalogue is now ready for distribution, and will be forwarded to the readers of YACHTING who address Mr. Kaufmann and enclose 6 cents in stamps for postage.



The base, showing bushed ball bearings on which shaft revolves. (Klaxon.)

A Lengthy Spark Plug Guarantee

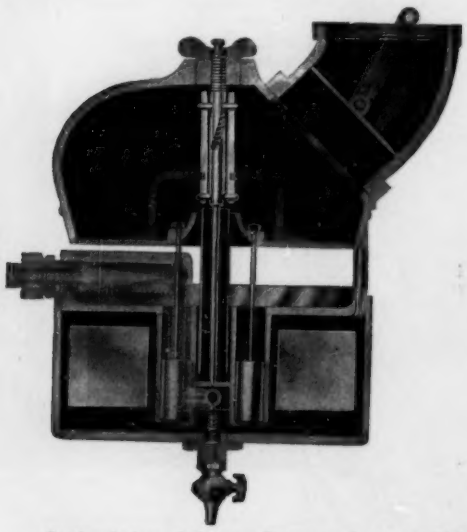
As indicating the great advances which have been made in the reliability of marine accessories during the past few years, it is known that one manufacturer of accessories has gone to the limit and placed himself squarely in the hands of his customers on the long life of his goods.

A few years ago no manufacturer guaranteed spark plugs; then some one guaranteed them for thirty days; then ninety days, and, recently, one company has guaranteed them for a year. But on the 1st of January the R. E. Hardy Company commenced to place a perpetual guarantee on Sta-Rite plugs. They agreed to make the Sta-Rite plugs as good as new at any time, if returned to their factory in New York City. This has already resulted in plugs being returned which have been used almost continuously for four or five years, but the manufacturers are confident that the advertising value of this guarantee more than compensates for the additional factory cost.

A New Carburetor by an Old Expert

There seems to be nothing that can be offered that is radically new in the way of a carburetor, and yet the Watres Manufacturing Company, of 1133 Broadway, New York, makers of the famous Watres whistles, are this year offering a carburetor that is so radically new as to be almost revolutionary. This new candidate for popular favor is called the Duryea carburetor, and wherein it differs from other carburetors is that it has a needle that automatically varies the flow of gasolene to meet the varying speeds of the engine, so that at the very highest speed the engine is getting just as correct a mixture as it does at the lower number of revolutions.

Air, of course, is not fuel. Air alone cannot run an engine. The ordinary carburetor with an auxiliary air port lets in more air as the engine speed increases, but this is only partially available. The Duryea, it is claimed, is the only one that not only admits more air but that also automatically furnishes just the right amount of gasolene to make the air completely available as fuel. In actual service it is claimed that the Duryea thus really gives from 10 to 20 per cent more power to the engine at high speeds than can be secured in any other way. No other carburetor even attempts to do what the Duryea does, the Watres Company claim, and while the price of the Duryea is necessarily high, the vital thing is that it furnishes power that cannot be had in any other way. The new carburetor was designed by Charles E. Duryea, consulting engineer for the N. A. A. M., and a man of probably the broadest experience of any engineer in the United States in the development of the gas engine. Mr. Duryea was the first engineer to develop the spray system in carburetors. Later he was granted patents on the first automatic air valve for carburetors, now in universal use. The present Duryea carburetor therefore represents a wonderful step forward in the maintenance of a perfect fuel supply regardless of the speed of the engine.



Sectional view of the new Duryea carburetor, which is claimed by its manufacturers to solve the problem of securing the correct mixture at any speed of engine.

No. 1.

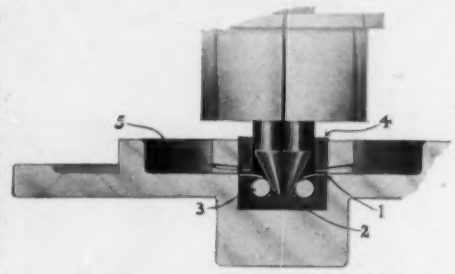
No. 2.

The eccentric sleeve, which allows outside adjustment of the toothed wheel for regulating the amount of friction between it and the engaging shoulder on the vibrating diaphragm. No. 1 shows the moving parts just touching. No. 2, the same parts brought too close together. The correct adjustment is half way between these extremes. (Klaxon.)

An Electric Ship Telegraph or Engine Room Signal

Instead of chains, rods or wires serving as a connection between the transmitter on the bridge and the receiver in the engine room, the new electric ship telegraph built by the Richardson Engineering Company, of Hartford, Conn., uses an electric cable containing a dozen wires.

As the name implies this is a ship telegraph operated electrically. Instead of the chains and rods or wires, which are difficult to install, with this instrument all that is necessary is a cable containing a dozen wires. The transmitter or sender has the same face and style of handle as the mechanical ship telegraph. When the handle is moved to the sector showing the signal which is to be sent, a buzzer sounds and this sector is lighted up. On the engine room dial (receiver) the same sector lights up and a gong sounds. If the buzzer sounds and the light appears at the transmitter, it is positive evidence that the engine room has the same signal, with the gong ringing and the light lighting in the same sector. Aside from the fact these are very serviceable at night, they are very neat in appearance and are up to date, which will appeal to the average yachtsman. These instruments are made in any desired form and size. The standard instrument is made up on a pedestal 44 inches high, full highly polished brass throughout, with engine room signal the same.



The base of the motor shaft is hardened steel running on ball bearing; 1, 2, ball retainers; 3, ball-bearings; 4, bushing; 5, oil trap; 6, oil duct. (Klaxon.)

The lights and signal are operated by a three or four-cell ignition battery, which will take care of it for a long time, there being no drain on the battery except at the time the signal is given.

The outfit includes a transmitter of 6½ inches diameter mounted on a tall stand, with operating handle and engine room receiver 7¾ inches diameter with electric gong.

Dials are 6 inches diameter, and show stop, sand-by-astern, slow astern, half astern and full astern with same "ahead." The outfit weighs but 40 pounds, which makes it particularly adaptable to motor boats, and owners will find it a great improvement.

Bridge transmitter and engine-room receiver of the new Richardson electric ship and yacht engine telegraph system.

They Both Use It

Whether Dixie II or Standard prove victor in the International races at Monaco this season, the Havoline Oil Company, of 80 Broad Street, New York City, will be able to point with pride to the fact that they lubricated the winner, as the owners of both these craft are taking with them a supply of Havoline marine motor oil to be used aboard their respective craft.

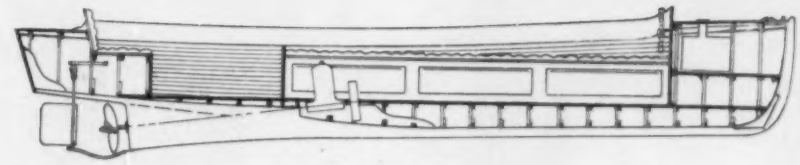
As no expense was spared in outfitting these boats, the decision of both owners to use the Havoline oil is a pretty strong indorsement of this lubricant.

READY FOR DELIVERY

STOCK BOATS

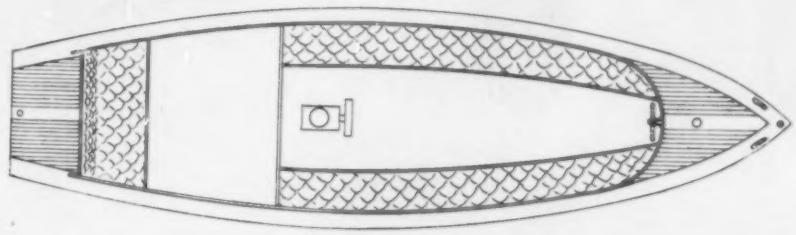
COME SEE THEM

LENGTH OVER ALL 18½ FEET BEAM 5 FEET



COMFORTABLE SEATING CAPACITY 10 PEOPLE

ENGINE, 3 H. P. SINGLE CYLINDER MONARCH



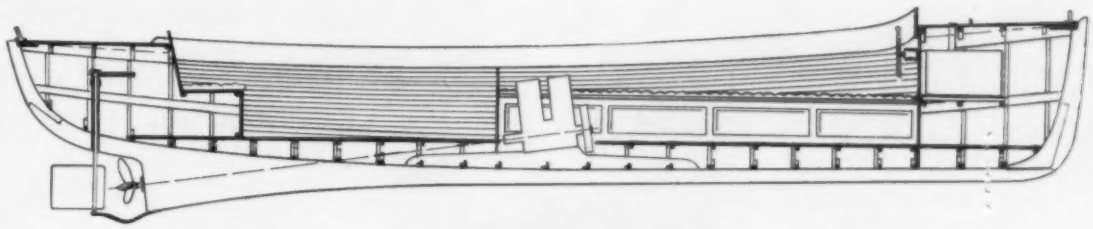
SPEED 8½ MILES REVERSIBLE ENGINE

The 18½ footer is a splendid little runabout, and the seating arrangement and chair space, in combination with the bulkhead separating the engine space from the after cockpit, makes her particularly safe for use with ladies and children aboard.

The 26 foot compromise stern open cruiser is a staunch, seaworthy craft and wonderfully well adapted to open water and fishing use. Her high freeboard and good lines render her very dry and able in rough weather. With a large spray hood for use as a summer cabin, she is capable of making long cruises. She has the same cockpit arrangement as the 18½ foot runabout shown above.

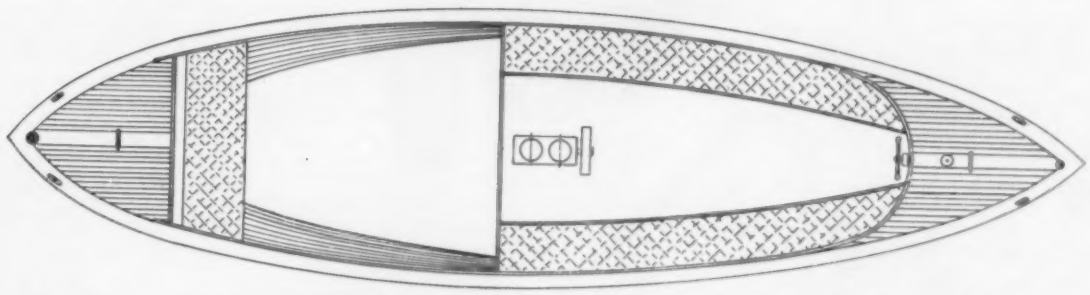
We also build this type of boat in 22 foot over all length, with finer lines. With a 5 H. P. engine she will be somewhat speedier than the 26 footer.

LENGTH OVER ALL 26 FEET BEAM 7 FEET



COMFORTABLE SEATING CAPACITY 18 PEOPLE

ENGINE, 8-9 H. P. 2 CYLINDER MONARCH



SPEED 8 MILES REVERSE CLUTCH

We are building a line of 26 foot raised deck cruisers equipped with 10 H. P., two cylinder Monarch engines. These, and the above described craft, are all stock boats and the greatest bargains to be found on the market this season.

WRITE FOR ILLUSTRATED CATALOGUE AND PRICE LIST

REPAIR WORK ENGINE INSTALLATION STORAGE

If your boat needs repairs or you want a new engine installed, write or phone us for estimates. Our repair and storage plant is the largest and best equipped in Greater New York and we do good work, quickly and at moderate charges. If you want a new engine, write us. We can save you money.

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(Take Broadway Subway or Surface Car, alight at 207th Street and walk west.)

How a Marine Gasolene Engine is Assembled

A large number of marine motor owners, particularly among initial buyers, take their motors apart to learn how they are constructed. A motor, as it comes from the factory, is put together and tested by experts.

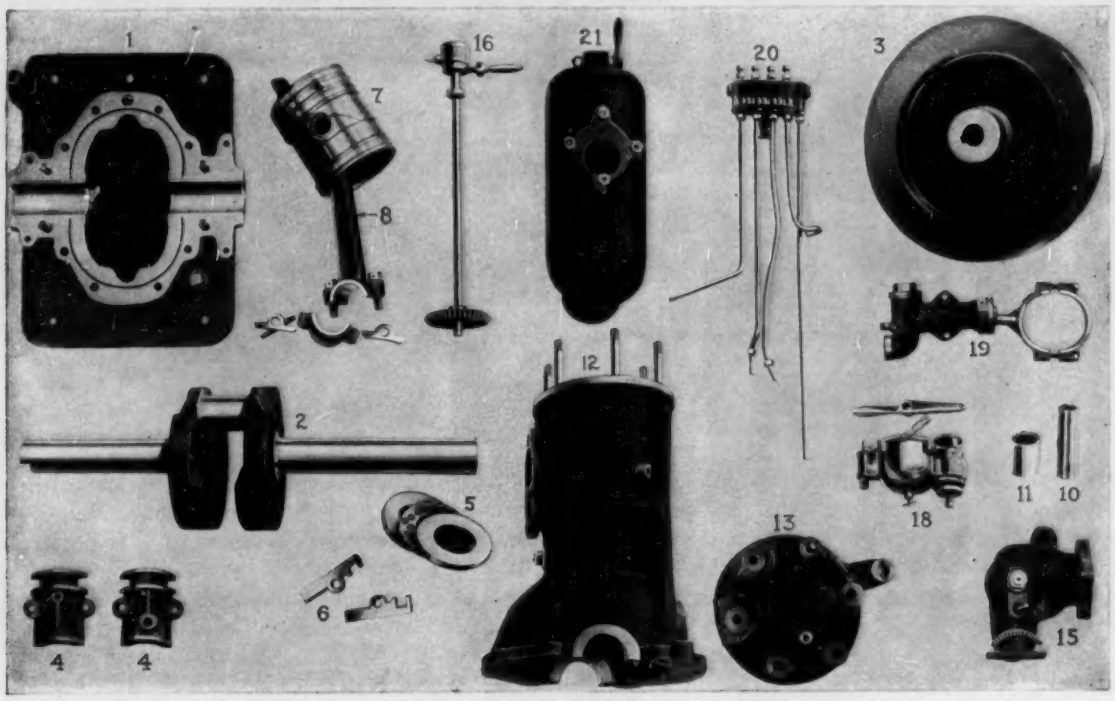

Fig. 1.

The inexperienced man who attempts to take his motor apart will invariably fail in reassembling it correctly, which entails the expense of having this work done at the factory or hiring a competent man to do it. Therefore, the object of this article is to assist the reader to know the general construction and assembly of the 2-cycle motor as applied to the Ferro marine engine, so that the owner or operator will not find it necessary to dissect it in order to become acquainted with its mechanism.

Fig. 1 shows all the parts of a 2-cycle motor, with every part numbered to make identification easy.

No. 1 in this figure is the lower part of the crank case that forms the base of the motor that rests upon the foundation timbers in the boat. It is an iron casting and must be heavily made, as it is a part of the motor upon which there is considerable strain. It contains the main bearings for the crankshaft, upon which bearings there is always a down thrust. Hence, these must be constructed of ample size for the distribution of oil, and to minimize friction and wear.

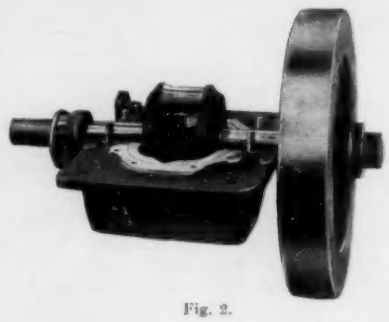

Fig. 2.

Fig. 3.

The crankshaft, No. 2, is a revolving part of the motor upon which all the power of the engine is exerted in operation. For transmitting this power at high speed, it is requisite that the crankshaft be made of the toughest material, namely, high-carbon steel, forged to shape. This crank is made heavier and stronger than is necessary in order to insure absolute safety.

Iron weights are placed opposite the crank so as to balance its weight and that of the piston and connecting rod bearing upon it. The machine grinding done on the crankshaft insures an accurate, interchangeable fit, as well as a smooth - running bearing surface. The crankshaft turns in a specially prepared bearing metal, called babbitt.

Fig. 2 shows the shaft with the fly-wheel set in position and ready for bearing caps (No. 4), which hold the crank snugly in its bearings. These bronze caps are set up on brass shims (No. 6), so as to allow for a fine adjustment of the caps in case of wear in the babbitt metal, which would result in a loose bearing.

The piston (No. 7) is a hard casting, set with four piston rings. These rings are machined a little larger than the piston and possess enough outward spring to keep them snug against the cylinder wall, their purpose being to prevent any escape of gases by the piston when the explosion occurs.

The connecting rod (No. 8) transmits all the power from the piston to the crankshaft, and must also be strongly constructed of tough material like the crankshaft. Its upper bearing to the piston is a hollow, hardened steel pin (No. 10), turning in bronze metal or bushings (No. 11). Its lower bearings are very similar to the main bearings, babbitt metal being used, and adjustable cap shims forming a snug fit to the crank. In Fig. 3, the connecting rod and piston are in place, showing the steel wire between the cap screws to keep them from loosening when engine is running.

The cylinder (No. 12) is a high-grade iron casting, which, with its cover or cylinder head (No. 13), forms the upper half of the engine power. A maximum pressure of from three hundred to five hundred pounds to the square inch is created in the cylinder of a combustion motor at every explosion. Thus, like the base and working parts, the cylinder must be constructed strongly and heavily, but not excessively so. The interior cylinder wall is ground out to an accurate fit and polished to receive the piston. Fig. 4 shows a handhole through which a wrench can be applied to remove the cap on the connecting rod. This handhole is especially advantageous, as it not only permits the entrance of the hand and wrench, but also allows a view of the entire interior of the crank case.

Fig. 5 shows a still further assembly of parts with the cylinder head (No. 13), and the exhaust and intake manifold (No. 15) bolted in position. Both pieces are castings, each possessing their water jackets and having accurately machined surfaces where they join the cylinder. The cylinder sparking timer, or commutator, as it is sometimes called, is shown in No. 16. It comprises the timer body at the top, in which revolves the contact device, properly called a commutator. It is attached to, and revolves on, the timer shaft. The bevel gear on the lower end engages a similar gear attached to the fly-wheel, off of which the timer device is driven. The complete timing apparatus, which is made of bronze metal, is shown assembled on the motor in Fig. 6.

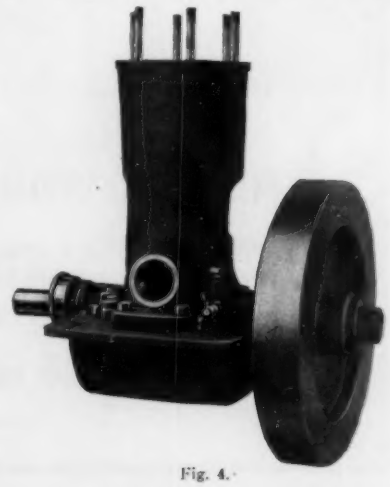

Fig. 4.

Positive feed and circulation of water is necessary with the marine motor. For

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FREE Try 3 in One at our expense. Write for free sample bottle and valuable booklet.

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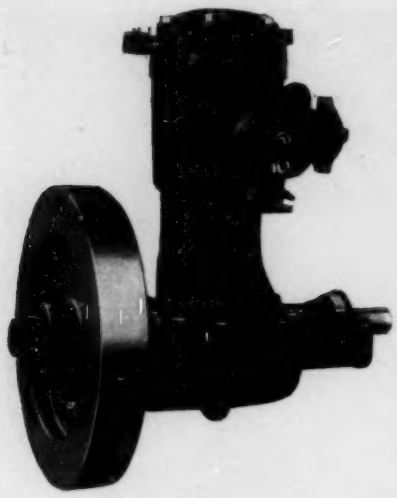


Fig. 5.

this reason it must be equipped with a positive force or pressure pump, either of the plunger or piston type. It is made entirely of brass to give good wearing qualities, and also to be serviceable in salt water. In the body of the pump are two valves, one to hold the water lifted from the intake pipe, another to hold the water forced from the pump. It will be seen from Fig. 6 that the pump is attached directly to the base of the motor where the channels, or ducts, in the castings convey the water from the pump to the cylinder. The plunger or piston of the pump is driven off of an eccentric on the crankshaft by means of the combined connecting rod and strap. The strap is constructed in halves as shown in No. 19, so that it can be easily removed or adjusted.

The carburetor (No. 18) is made entirely of brass, excepting the float feed, which is cork. The body of the carburetor is one casting, and the top piece, forming the cover and flange connection to the intake header, in another. By reference to Fig. 6, it can be seen that the carburetor is firmly affixed to the motor with but two bolts, which are easily reached with a flat wrench, so that with the placing of the throttle lever upon the exhaust header and making the connection to the carburetor valve, this portion of the assembly is quickly and easily accomplished.

In No. 20, the sight-feed oil distributor, with its various oil tubes, is shown. The tubes are soft brass, easily bent for connection with their respective bearings. The body of the distributor is cast brass, the upper portion of it containing a chamber where the lubricant is forced from the oil tank through a feed tube.

No. 21 shows the expansion chamber or exhaust condenser. It is an iron casting, hollow inside, with a vent valve at the top. The large opening connects directly with the exhaust discharge on the exhaust header of the motor, four bolts fastening both pieces firmly together. The small opening above the exhaust is the duct for injecting water into the condenser.

This description makes the assembly of a single-cylinder Ferro motor very easy to understand.

A Path of Light for the Boat to Follow

The Richardson Engineering Company, of Hartford, Conn., have brought out a line of Mangin mirror searchlights in 7, 9, 14 and 18-inch sizes to accompany their illuminating outfits. They are all of the automatic shunt-feed type, and are constructed with such accuracy in every detail that smooth, positive working of every portion of the mechanism may always be relied upon. Being nickelplated and polished, the interior working parts are corrosion proof. By a special method of construction, as well as by arrangement of carbons and grinding of the mirror, the maximum range for each size and quantity of current is assured.

A simplification in their switchboard, and their new automatic charging box, have allowed the Richardson Company to make a material reduction in the price of their equipments, particularly in those outfits which are suitable for craft ranging in size from 30 to 55 feet over all. This charging box consists of a voltmeter, ammeter and an automatic switch, which disconnects the storage battery from the dynamo, when the former is fully charged, and also when the engine is closed down, automatically switching back the storage battery on to the generator, when the voltage is high enough to charge.

The new charging box and switchboard which has greatly simplified the electric lighting system for marine use.

As will be seen by the illustration herewith this automatic charging box is almost human in its intelligence; there are but three points for the switch shown on the right of the charging box, and these are marked so plainly that a skipper, even though deficient in electric lore, will not have the slightest trouble in knowing "where he is at."

The Richardson Engineering Company also manufacture a complete line of large electric light outfits of all sizes, which they will install if preferred, and generating sets with independent gasolene or steam engines. All of these may be seen in their show room and general sales office, 107 Liberty Street, New York City.

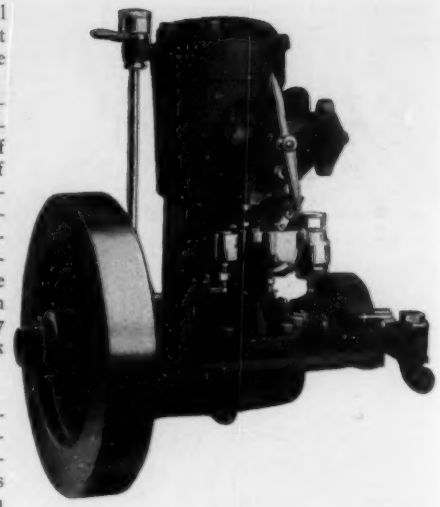


Fig. 6.

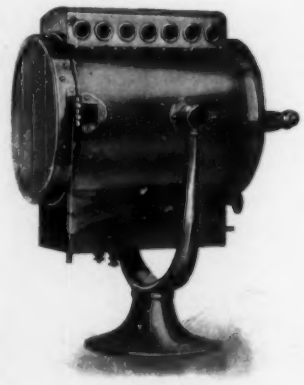
A Severe Test and how it is Applied

The making of marine gasolene engines has rapidly developed from the stage of being "built" to that of being "manufactured." Some of the prominent manufacturers at the present time are not speaking of the points of the engine itself, but point out to a discriminating public that in order to produce and maintain a world-wide reputation they must have the facilities for manufacturing, inspecting and testing their product, to insure its being always satisfactory.

Two engines mounted on a Gray testing stand. The engines are connected by a friction clutch, and one, run under its own power, turns up the other.

A notable example of a testing room in which the final judgment is passed upon an engine is that operated by the Gray Motor Company, of Detroit, Mich. Here the engine must be run under conditions as nearly like those in a boat as is possible, under the eyes of competent inspectors, and in such a way that every defect or possible cause of trouble at a later date may be observed and corrected. The testing room of the Gray Motor Company is the brightest, airiest and one of the cleanest places in their whole manufacturing establishment; they call it their "show room," and to it visitors are welcome at all times.

In this room are eight blocks, or large testing stands, each of which holds two motors. In the center of the stand is a water-cooled brake wheel, and between



One of the Richardson Engineering Company's Mangin mirror electric searchlights as arranged for installation on cabin roof, with control from deck or cockpit.

DON'T PAINT YOUR BOAT—ENAMEL IT

WITH

THE FINEST FINISH FOR A FINE YACHT

Enamolin

IT WEARS FOUR TIMES AS LONG AS ANY PAINT

A pure, white enamel that dries out with a brilliant gloss, showing no brush marks, and closely resembling porcelain. *It never checks, cracks, peels, or flakes.* When soiled it may be *scrubbed* with soap and water, without injury. *It will not discolor at the water line from lying in dirty waters.* Enamolin may be applied over the old paint without scraping or burning off. Enamolin is also made in Flat White, Gloss Black, Flat Black and colors. One gallon covers about 600 square feet and is sufficient to finish the average yacht.

Price, $5 per gallon.

One-Half Gallon Cans, $2.60 each; One-Quarter Gallon Cans, $1.35 each; One-Eighth Gallon Cans, 75 cents each.
For sale at all Ship-chandlers, or may be had direct from the factory.
We prepay the expressage on one gallon or over.

A couple of unsolicited testimonials

CHAS. A. STADBOCK, Commodore
Steam Yacht "CARMEN"
GEORGE B. BRANSON, Secretary
76 William Street
Telephone 5658 John

COLUMBIA YACHT CLUB
Eighty-Sixth Street
Hudson River
New York
Telephone 4140 Riverside

Nov. 14, 1908.

Mess. Emil Calman & Co.
100 William St., City.

Dear Sirs:-

It is with great pleasure that I send you this unsolicited testimoniel.

I used your Enamolin on my yacht "Waterey", and am pleased to say that it made good in every sense that you said it would. I was particularly impressed with the ease in which it can be applied and the beautiful gloss after drying, showing no brush marks. My headquarters this summer were at the Larchmont Yacht Club, New York, and if I heard one, I heard dozens remark the whiteness of my boat, compared to much more expensive and larger boats as well as smaller. I will not have to paint it next summer, from the appearance of the paint now. Heretofore I have had to paint it every year.

Yours very truly,

J. W. Brander.

B/MKC

COLUMBIA YACHT CLUB
CHICAGO

Chicago Sept. 26th 1908.

Emil Calman & Co
Gentlemen:

I have heard so much of your Blue Label Enamolin that I had Jones & La Bonde of Oakwood Wis. use some on the "Columbia" the Columbia Yacht Club's defender in the recent cup races — and do not regret it. Considering the wear and tear, the Boat had during the season I am well satisfied that the Enamolin is all right

Sometime ago some scows loaded with refuse from a Gas Company dumped many loads into the lake just outside the mouth of the Chicago Yacht Columbia Yacht Club and the wind would blow the oily waves into the rooms that have coated the White sides of the yachts with Green Purple and Brown splotches - and while a great many boats were ruined, it did not effect the Enamolin, as we easily washed it off.

Yours Truly.
J. F. McGuire
(J. F. McGuire) Commodore Columbia Yacht Club

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For Marine Engines and Motor Boats. Pass the Government Inspection

Outfits No. 4, 5, 6 and 7

WE FURNISH EVERTHING COMPLETE

as shown by the accompanying cut. with the exception of the engine. Prices range from

$7.00 to $30.00

Over 30,000 "Yankee" Mufflers in use on automobiles and marine engines. Asbestos lined, riveted seams and water cooled when necessary. The only muffler made that will take care of any gasoline engine without back-pressure at all speeds of the engine, and silent. Made in various sizes from ½ to 150 H. P.

We have the only automatic brass check valve that will not open unless an explosion takes place in the cylinder, it will not open on compression, therefore no live gases can enter tank. This check valve is air cooled, is provided with flame destroyer preventing any flame from entering the valve. It is screwed into the cylinder of engine either at the top or side in place of priming cock. The whistle is blown by spent gas taken through 1/100 part of an inch opening in the automatic check valve and stored in tank, takes no power from engine. Operator always has a good pressure of air to blow whistle loud with continued blast whether engine is running or not. Whistle is a four toned musical chime whistle giving a deep pleasant sound that can be heard for miles. All parts brass, highly polished. Anyone with a monkey wrench can install outfit and requires no further attention. Always reliable. Agents wanted. Write for prices and booklet. Each outfit fully guaranteed or money refunded.

Manufactured only by THE "YANKEE" CO., Box Y, Utica, New York, U.S.A.

New York City Agents, H. B. Drake & Co., 90 West St.; Boston, Mass., Agents, Gordon Automobile Supply Co., 1024 Boylston St.; Canadian Agents, The Canadian Fairbanks Co., Montreal, Toronto, St. Johns, Winnipeg and Vancouver; Detroit, Mich., Agency, C. M. Jacobsen, 238 Jefferson Ave.; Chicago Agents, Bullock-Waite Co.; Philadelphia, Pa., Agents, Miamus Motor Co., Bourse Block; Cleveland, O., Agents, Howe-Scale Co., 1424 West 9th Ave.

this wheel and the motor, on each end, is a friction clutch. This arrangement is to enable each engine, under its own power, to work out another engine which has just been brought from the testing room.

The Gray method of testing is as follows: Two engines are placed on a stand; No. 1 engine is started under its own power, and its friction clutch, driving the brake, is thrown in. The second friction clutch is then thrown in, which causes No. 1 to drive No. 2. Sufficient load above the drag of the No. 2 engine is then added by tightening up the brake, to absorb the full power of the engine at its normal speed. The two engines, one driving and the other driven, are run in this manner for several hours, or until every detail of the outfit has been thoroughly tested and adjusted. A careful brake test on No. 1 is then made, full particulars of which are recorded on a test card.

Engine No. 1 is then removed and sent to finishing department to be prepared for shipment, and for it is substituted engine No. 3. No. 2 is now started up under its own power, driving No. 3, and so on in regular succession.

English Yachting

Continued from Page 301

That is why steam yachts are being built here for American owners. It is not because you cannot build as well as we can. We know you can. But for a young people you are wonderfully old-fashioned in many things.

While you are impressing on us that you are the salt of the earth you are letting things slip through your fingers, to be developed elsewhere. You let the carrying trade of the world come to us, and see what we have made of it! You allowed us to build up a steam yacht industry with your own dollars. Now you are evidently about to hand over to us the development of the racing cutter. For that is what it amounts to if you do not come into the International classes. Of course, it seems odd that I should tell you this; but you must remember that I am a Scot, whose ideal of a man is a bonnie fighter.

There is not much else doing in British waters. People are beginning to talk about fitting-out, but it is early yet for that. The fleet of steamers which has gone to the Mediterranean seems a little smaller than usual, though nearly all the better-known vessels are in commission. During the motor boat races at Monaco we shall be better represented ashore, I fear, than afloat. I see you are to be represented by the engines of Dixie II in a new hull, and by Standard. I hope there are no disappointments in store for you; but the Mediterranean off Monte Carlo can be very unlike the Hudson River when it wishes. Before this appears in type the racing boat which Saunders is building at Cowes for the Duke of Westminster will be out. This is, I believe, one of our cup boats. ROBERT MACINTYRE.

The Failure of Independence

(Continued from page 293.)

The race started at noon. Independence returned at nine o'clock at night. She was not timed. The gloom of patriotic Bostonians may be imagined. There had been great talk of her terrific burst of speed in her tuning-up spins, of defeating swift tugboats around the Cape—and now—? No one seemed able to understand the situation, and with good reason, since reports of the condition of Independence had not been made public. As a matter of fact, in the first races the crew was ordered not to pump when near other boats, in order to conceal the fact that she was leaking.

The second race was sailed in a light southerly breeze and Independence still lagged, being beaten

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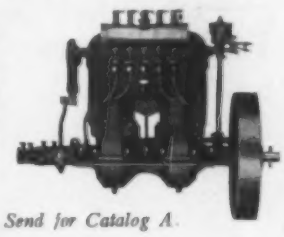

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